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LED LCD TV

SERVICE MANUAL

CHASSIS : LA01M

MODEL : 32LV3500 32LV3500-UG
32LV3520 32LV3520-UJ

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between $1M\Omega$ and $5.2M\Omega$.

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the

unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique
 - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
 - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
 - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor

Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device

Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor

Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
 2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
 3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
- CAUTION:** Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This spec sheet is applied LCD TV with LA01M chassis. .

2. Requirement for Test

Each part is tested as below without special appointment.

- 1) Temperature: 25 °C \pm 5 °C
- 2) Relative Humidity: 65 \pm 10 %
- 3) Power Voltage : Standard input voltage(100-240V~, 50/60Hz)
* Standard Voltage of each product is marked by models
- 4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
- 5) The receiver must be operated for about 5 minutes prior to the adjustment.

3. Test method

- 1) Performance: LGE TV test method followed
- 2) Demanded other specification
 - Safety : UL, CSA, IEC specification
 - EMC: FCC, ICES, IEC specification

4. General Specification(TV)

No	Item	Specification			Remark
1	Receivable System	1) ATSC / NTSC-M			
2	Available Channel	1) VHF : 02 ~ 13 2) UHF : 14 ~ 69 3) DTV : 02 ~ 69 4) CATV : 01 ~ 135 5) CADTV : 01 ~ 135			
3	Input Voltage	1) AC 100 ~ 240V 50/60Hz 2) AC 100 ~ 240V 60Hz			Mark : 110V, 60Hz (N.America) Mark : 220V, 60Hz (Korea)
4	Market	North America KOREA			
5	Screen Size	32/37/42/47 inch Wide (1920x1080) 26/32 inch Wide (1366x768)	FHD + 60Hz HD + 60Hz		Only 32LV3400-NG, 26/32LK330-NH
6	Aspect Ratio	16:9			
7	Tuning System	FS			
8	LCD Module	LC320EXN-SDA1	LGD	HD	32LV2500-UG, 32LV2520-UJ 32LV3400-UG/NG
		VVX32H110G00	IPS	HD	32LV3400-NG
		LC320EUN-SDV2	LGD	FHD	32LV3500-UG/NG, 32LV3510-NH, 32LV3520-UJ/NJ
		VVX32F110G00	IPS	FHD	32LV3500-NG, 32LV3510-NH, 32LV3520-NJ
		LC370EUN-SDV2	LGD	FHD	37LV3500-UG
		LC420EUN-SDV3	LGD	FHD	42LV3500-UG/NG, 42LV3510-NH, 42LV3520-UJ/NJ, 42LV3400-NG
		LC420EUN-SDV3	LGD	FHD	47LV3500-UG/NG, 47LV3510-NH, 47LV3520-NJ
		T260XW04-V9	AUO	HD	26LK330-UH/NH
		LC320WXN-SCA2	LGD	HD	32LK330-UH/NH
		T315XW03-VF	AUO	HD	32LK330-UH
		VVX32H109G00	IPS	HD	32LK330-NH
		T315HW04-V9	AUO	FHD	32LK430-UG, 32LK450-UH
		LC370WUE-SCA1	LGD	FHD	37LK450-UH
		T370HW03-VN	AUO	FHD	37LK450-UH
		LC420WUE-SCA2	LGD	FHD	42LK430-UG/NG, 42LK450-UH
		T420HW09-V0	AUO	FHD	42LK450-UH
		LC470WUE-SCA2	LGD	FHD	47LK450-UH
9	Operating Environment	Temp : 0 ~ 40 deg Humidity : ~ 80 %			
10	Storage Environment	Temp : -20 ~ 60 deg Humidity : -85 %			

5. Chrominance & Luminance

No	Item			Min	Typ	Max	Unit	Maker		Remark
1	MaxLuminance (Center1-point / Full White Pattern) - 10% decline of Module spec - 20% decline of Module spec : only 47LV3500			270	342			LGD		32LV2500-UG, 32LV2520-UJ 32LV3400-UG/NG
				225	315			IPS		32LV3400-NG
				261	324			LGD		32LV3500-UG/NG, 32LV3510-NH, 32LV3520-UJ/NJ
				270	360			IPS		32LV3500-NG, 32LV3510-NH, 32LV3520-NJ
				261	324			LGD		37LV3500-UG
				261	324			LGD		42LV3500-UG/NG, 42LV3510-NH, 42LV3520-UJ/NJ, 42LV3400-NG
				232	288			LGD		47LV3500-UG/NG, 47LV3510-NH, 47LV3520-NJ
				324	415			AUO		26LK330-UH/NH
				342	405			LGD		32LK330-UH/NH
				315	360			AUO		32LK330-UH
				270	360			IPS		32LK330-NH
				288	360			AUO		32LK430-UG, 32LK450-UH
				360	450			LGD		37LK450-UH
				288	360			AUO		37LK450-UH
				360	450			LGD		42LK430-UG/NG, 42LK450-UH
				288	360			AUO		42LK450-UH
				360	450			LGD		47LK450-UH
2	Luminanceuniformity			75			%		Min/Max	Full white
						1.3		LGD	Max/Min	LGD models
						1.3		AUO 42		AUO 42 FHD
						30		IPS-a		IPS-amodel
3	Color coordinate (32 Edge LED)	RED	X	Typ. -0.03	0.637	Typ. +0.03		LGD	HD	32LV2500-UG, 32LV2520-UJ 32LV3400-UG/NG
			Y		0.341					
		GREEN	X		0.318					
			Y		0.606					
		BLUE	X		0.153					
			Y		0.057					
		WHITE	X		0.279					
			Y		0.292					
	Color coordinate (32 Edge LED)	RED	X	Typ. -0.03	0.645	Typ. +0.03		IPS	HD	32LV3400-NG
			Y		0.330					
		GREEN	X		0.320					
			Y		0.620					
		BLUE	X		0.153					
			Y		0.070					
		WHITE	X		0.278					
			Y		0.285					
	Color coordinate (32 Edge LED)	RED	X	Typ. -0.03	0.637	Typ. +0.03		LGD	FHD	32LV3500-UG/NG, 32LV3510-NH, 32LV3520-UJ/NJ
			Y		0.341					
		GREEN	X		0.320					
			Y		0.606					
		BLUE	X		0.152					
			Y		0.055					
		WHITE	X		0.279					
			Y		0.292					
	Color coordinate (32 Edge LED)	RED	X	Typ. -0.03	0.645	Typ. +0.03		IPS	FHD	32LV3500-NG, 32LV3510-NH, 32LV3520-NJ
			Y		0.330					
		GREEN	X		0.300					
			Y		0.620					
		BLUE	X		0.153					
			Y		0.065					
		WHITE	X		0.278					
			Y		0.285					

	Color coordinate (37 Edge LED)	RED	X	Typ. -0.03	0.637	Typ. +0.03		LGD	FHD	37LV3500-UG
			Y		0.341					
		GREEN	X		0.319					
			Y		0.605					
		BLUE	X		0.154					
			Y		0.051					
	Color coordinate (42 Edge LED)	RED	X	Typ. -0.03	0.637	Typ. +0.03		LGD	FHD	42LV3500-UG/NG, 42LV3510-NH, 42LV3520-UJ/NJ, 42LV3400-NG
			Y		0.341					
		GREEN	X		0.325					
			Y		0.600					
		BLUE	X		0.152					
			Y		0.051					
	Color coordinate (47 Edge LED)	RED	X	Typ. -0.03	0.639	Typ. +0.03		LGD	FHD	47LV3500-UG/NG, 47LV3510-NH, 47LV3520-NJ
			Y		0.343					
		GREEN	X		0.316					
			Y		0.595					
		BLUE	X		0.152					
			Y		0.058					
	Color coordinate (26 Lamp)	RED	X	Typ. -0.03	0.644	Typ. +0.03		AUO	HD	26LK330-UH/NH
			Y		0.331					
		GREEN	X		0.273					
			Y		0.588					
		BLUE	X		0.151					
			Y		0.061					
	Color coordinate (32 Lamp)	RED	X	Typ. -0.03	0.636	Typ. +0.03		LGD	HD	32LK330-UH/NH
			Y		0.335					
		GREEN	X		0.291					
			Y		0.603					
		BLUE	X		0.146					
			Y		0.061					
	Color coordinate (32 Lamp)	RED	X	Typ. -0.03	0.640	Typ. +0.03		AUO	HD	32LK330-UH
			Y		0.330					
		GREEN	X		0.290					
			Y		0.600					
		BLUE	X		0.150					
			Y		0.060					
	Color coordinate (32 Lamp)	RED	X	Typ. -0.03	0.645	Typ. +0.03		IPS	HD	32LK330-NH
			Y		0.330					
		GREEN	X		0.300					
			Y		0.620					
		BLUE	X		0.153					
			Y		0.065					
	Color coordinate (32 Lamp)	RED	X	Typ. -0.03	0.640	Typ. +0.03		AUO	FHD	32LK430-UG, 32LK450-UH
			Y		0.330					
		GREEN	X		0.281					
			Y		0.590					
		BLUE	X		0.144					
			Y		0.060					
		WHITE	X		0.280					
			Y		0.290					

	Color coordinate (37 Lamp)	RED	X	Typ. -0.03	0.639	Typ. +0.03		LGD	FHD	37LK450-UH
			Y		0.334					
		GREEN	X		0.289					
			Y		0.606					
		BLUE	X		0.145					
			Y		0.065					
		WHITE	X		0.279					
			Y		0.292					
	Color coordinate (37 Lamp)	RED	X	Typ. -0.03	0.640	Typ. +0.03		AUO	FHD	37LK450-UH
			Y		0.330					
		GREEN	X		0.281					
			Y		0.590					
		BLUE	X		0.144					
			Y		0.060					
		WHITE	X		0.280					
			Y		0.290					
	Color coordinate (42 Lamp)	RED	X	Typ. -0.03	0.636	Typ. +0.03		LGD	FHD	42LK430-UG/NG, 42LK450-UH
			Y		0.335					
		GREEN	X		0.291					
			Y		0.603					
		BLUE	X		0.146					
			Y		0.061					
		WHITE	X		0.279					
			Y		0.292					
	Color coordinate (42 Lamp)	RED	X	Typ. -0.03	0.640	Typ. +0.03		AUO	FHD	42LK450-UH
			Y		0.330					
		GREEN	X		0.281					
			Y		0.590					
		BLUE	X		0.144					
			Y		0.060					
		WHITE	X		0.280					
			Y		0.290					
	Color coordinate (47 Lamp)	RED	X	Typ. -0.03	0.639	Typ. +0.03		LGD	FHD	47LK450-UH
			Y		0.334					
		GREEN	X		0.290					
			Y		0.606					
		BLUE	X		0.146					
			Y		0.058					
		WHITE	X		0.279					
			Y		0.292					

6. Component Video Input (Y, CB/PB, CR/PR)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed
1.	720*480	15.73	60	13.5135	SDTV ,DVD 480I
2.	720*480	15.73	59.94	13.5	SDTV ,DVD 480I
3.	720*480	31.50	60	27.027	SDTV 480P
4.	720*480	31.47	59.94	27.0	SDTV 480P
5.	1280*720	45.00	60.00	74.25	HDTV 720P
6.	1280*720	44.96	59.94	74.176	HDTV 720P
7.	1920*1080	33.75	60.00	74.25	HDTV 1080I
8.	1920*1080	33.72	59.94	74.176	HDTV 1080I
9.	1920*1080	67.500	60	148.50	HDTV 1080P
10.	1920*1080	67.432	59.94	148.352	HDTV 1080P
11.	1920*1080	27.000	24.000	74.25	HDTV 1080P
12.	1920*1080	26.97	23.976	74.176	HDTV 1080P
13.	1920*1080	33.75	30.000	74.25	HDTV 1080P
14.	1920*1080	33.71	29.97	74.0176	HDTV 1080P

7. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed		
	PC					DDC	
1.	640*350	31.468	70.09	25.17	EGA	X	
2.	720*400	31.469	70.08	28.32	DOS	O	
3.	640*480	31.469	59.94	25.17	VESA(VGA)	O	
4.	800*600	37.879	60.31	40.00	VESA(SVGA)	O	
5.	1024*768	48.363	60.00	65.00	VESA(XGA)	O	
6.	1280*768	47.776	59.870	79.5	CVT(WXGA)	X	
7.	1360*768	47.712	60.015	85.50	VESA(WXGA)	X	
8.	1280*1024	63.981	60.020	108.0	VESA (SXGA)	O	Except LK330 series
9.	1600*1200	75.00	60.00	162.0	VESA (UXGA)	X	Except LK330 series
10.	1920*1080	66.587	59.934	138.5	HDTV 1080P	O	Except LK330 series

8. HDMI input (PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed		Remark
	PC					DDC	
1.	640*350	31.468	70.09	25.17	EGA	X	
2.	720*400	31.469	70.08	28.32	DOS	O	
3.	640*480	31.469	59.94	25.17	VESA(VGA)	X	
4.	800*600	37.879	60.31	40.00	VESA(SVGA)	O	
5.	1024*768	48.363	60.00	65.00	VESA(XGA)	O	
6.	1280*768	47.776	59.870	79.5	CVT(WXGA)	X	
7.	1360*768	47.712	60.015	85.50	VESA (WXGA)	O	
8.	1280*1024	63.981	60.020	108.0	VESA (SXGA)	O	Except LK330 series
9.	1600*1200	75.00	60.00	162.0	VESA (UXGA)	X	Except LK330 series
10.	1920*1080	66.587	59.934	138.5	HDTV 1080P	O	Except LK330 series
	DTV						
1	720*480	31.47	60	27.027	SDTV 480P	O	
2	720*480	31.47	59.94	27.00	SDTV 480P	O	
3	1280*720	45.00	60.00	74.25	HDTV 720P	O	
4	1280*720	44.96	59.94	74.176	HDTV 720P	O	
5	1920*1080	33.75	60.00	74.25	HDTV 1080I	O	
6	1920*1080	33.72	59.94	74.176	HDTV 1080I	O	
7	1920*1080	67.500	60	148.50	HDTV 1080P	O	
8	1920*1080	67.432	59.939	148.352	HDTV 1080P	O	
9	1920*1080	27.000	24.000	74.25	HDTV 1080P	O	
10	1920*1080	26.97	23.976	74.176	HDTV 1080P	O	
11	1920*1080	33.75	30.000	74.25	HDTV 1080P	O	

ADJUSTMENT INSTRUCTION

1. Application range

This spec. sheet applies to LA01M Chassis applied LCD TV all models manufactured in TV factory.

2. Specification

- 2.1 Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
- 2.2 Adjustment must be done in the correct order.
- 2.3 The adjustment must be performed in the circumstance of $25\pm5^{\circ}\text{C}$ of temperature and $65\pm10\%$ of relative humidity
- 2.4 The input voltage of the receiver must keep 100~240V~, 50/60Hz.
- 2.5 At first Worker must turn on the SET by using Power Only key.
- 2.6 The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15.

- Caution

When a still image is displayed for 20 minutes or longer (especially where W/B scale is strong. Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area.

3. Adjustment items

3.1. Main PCBA Adjustments

- (1) ADC adjustment: Component 480i, 1080p / RGB-PC 1080p
- (2) EDID download: HDMI and RGB-PC

- Remark

- Above adjustment items can be also performed in Final Assembly if needed. Adjustment items in both PCBA and final assembly stages can be checked by using the INSTART Menu 1.ADJUST CHECK.

3.2 Final Assembly adjustment

- (1) White Balance adjustment
- (2) RS-232C functionality check
- (3) Factory Option setting per destination
- (4) Shipment mode setting (IN-STOP)
- (5) GND and HI-POT test

3.3 Etc

- (1) Shipment conditions
- (2) Tool option menu
- (3) USB Download (S/W Update, Option and Service only)
- (4) Preset CH Information

4. MAIN PCBA Adjustments

4.1. ADC Adjustment

4.1.1. Overview

- ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation.

4.1.2. Equipment & Condition

(1) Protocol: RS-232C

(2) Inner Pattern

- Resolution : 1080p(Comp) / 1024*768(RGB)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level : 0.7 ± 0.1 Vp-p

4.1.3. Adjustment

4.1.3.1 Adjustment method

- Connect to Jig by using RS-232, adjust Component and RGB

*Manual adj (If needed in Final Assembly)

- Required equipment : Adjustment R/C
- Enter Service Mode by pushing "ADJ" key,
- Enter Internal ADC mode by pushing 'G' key at [6. ADC Calibration]

4.1.3.2 Adj. protocol

Protocol	CMD 1	CMD 2	Data 1	Data 2	Remark
Enteradjmode	a	a	00	00	When transfer the Mode In, Carry the command.
Start ADC adj	a	d	00	10	Automatically adjustment (Use internal pattern)

4.2. EDID Download

4.2.1 Overview

- It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of "Plug and Play".

4.2.2 Equipment

- Since embedded EDID data is used, EDID download JIG, HDMI cable and D-sub cable are not need.
- Adjust by using remote controller.

4.2.3. Download method

- Press Adj. key on the Adj. R/C,
- Select EDID D/L menu.
- By pressing Enter key, EDID download will begin
- If Download is successful, OK is display, but If Download is failure, NG is displayed.
- If Download is failure, Re-try downloads.

* Caution) When EDID Download, must remove RGB/HDMI Cable.

4.2.4 EDID DATA

4.2.4.1. North America (PCM)

4.2.4.1.1. FHD Model

4.2.4.1.1.1 10BIT

■ HDMI 1-FHD-10BIT (C/S : 03CC)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	CC

■ HDMI 2-FHD-10BIT (C/S : 03BC)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	BC

■ HDMI 3-FHD-10BIT (C/S : 03AC)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	B8	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	AC

■ RGB-FHD (C/S : ED)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	66	21	50	80	51	00	1B	30
50	40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	ED

4.2.4.1.1.2 8BIT

■ HDMI 1-FHD-8BIT (C/S : 0304)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	80	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	04

■ HDMI 2-FHD-8BIT (C/S : 03F4)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	80	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	F4

■ HDMI 3-FHD-8BIT (C/S : 03E4)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	80	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	A0	5A	00	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	A0	5A	00	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	A0	5A	00	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	A0	5A
60	00	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	A0	5A	00	00	00	1A	00	00	00	00	00	00	00	00	00	E4

■ RGB-FHD (C/S : ED)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01	01
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E	20
50	40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	ED

4.2.4.1.2. HD Model

■ HDMI 1-HD (C/S : 1B74)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	A1	08	00	81	C0	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	06	21	50	B0	51	00	1B	30	40	70
40	36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00	39
60	3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	1B

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07	07
10	67	03	0C	00	10	00	80	2D	E3	05	03	01	02	3A	80	18
20	71	38	2D	40	58	2C	04	05	7E	8A	42	00	00	1E	01	1D
30	80	18	71	1C	16	20	58	2C	25	00	7E	8A	42	00	00	9E
40	01	1D	00	72	51	D0	1E	20	6E	28	55	00	7E	8A	42	00
50	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	7E	8A
60	42	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25	00
70	7E	8A	42	00	00	1A	00	00	00	00	00	00	00	00	00	74

■ HDMI 2-HD (C/S : 1B64)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	A1	08	00	81	C0	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	06	21	50	B0	51	00	1B	30	40	70
40	36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00	39
60	3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	1B

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7
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■ HDMI 3-4D (C/S : 1B54)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0
20		09	48	4C	A1	08	00	81	C0	01	01	01	01	01	01	01
30		01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40
40		36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E
50		6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00
60		3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	1B

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		02	03	1C	F1	47	10	22	20	05	84	03	02	23	09	07
10		67	03	0C	00	30	00	80	2D	E3	05	03	01	02	3A	80
20		71	38	2D	40	58	2C	04	05	7E	8A	42	00	00	1E	01
30		80	18	71	1C	16	20	58	2C	25	00	7E	8A	42	00	9E
40		01	1D	00	72	51	D0	1E	20	6E	28	55	00	7E	8A	42
50		00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96	00	7E
60		42	00	00	18	26	36	80	A0	70	38	1F	40	30	20	25
70		7E	8A	42	00	00	1A	00	00	00	00	00	00	00	00	54

■ RGB-HD (C/S : 6F)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	CF	30	A3	57	4C	B0
20		09	50	4E	A1	08	00	81	C0	01	01	01	01	01	01	01
30		01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40
40		36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E
50		6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00
60		3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	00	6F

4.2.4.2. Korea (AC3)

4.2.4.2.1. FHD Model

4.2.4.2.1.1. 10BIT

■ HDMI 1-FHD-10BIT (C/S : 035A)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	EE	91	A3	54	4C	99
20		0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01
30		01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58
40		45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E
50		6E	28	55	00	A0	5A	00	00	1E	00	00	00	FD	00	39
60		3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		02	03	1F	F1	47	10	22	20	05	84	03	02	26	15	07
10		09	07	07	67	03	0C	00	10	00	B8	2D	E3	05	03	01
20		3A	80	18	71	38	2D	40	58	2C	04	05	A0	5A	00	00
30		1E	01	1D	80	18	71	1C	16	20	58	2C	25	00	A0	5A
40		00	00	9E	01	1D	00	72	51	D0	1E	20	6E	28	55	00
50		5A	00	00	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E
60		00	A0	5A	00	00	00	18	26	36	80	A0	70	38	1F	40
70		20	25	00	A0	5A	00	00	00	1A	00	00	00	00	00	5A

■ HDMI 2-FHD-10BIT (C/S : 034A)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	EE	91	A3	54	4C	99
20		0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01
30		01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58
40		45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E
50		6E	28	55	00	A0	5A	00	00	1E	00	00	00	FD	00	39
60		3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		02	03	1F	F1	47	10	22	20	05	84	03	02	26	15	07
10		09	07	07	67	03	0C	00	10	00	B8	2D	E3	05	03	01
20		3A	80	18	71	38	2D	40	58	2C	04	05	A0	5A	00	00
30		1E	01	1D	80	18	71	1C	16	20	58	2C	25	00	A0	5A
40		00	00	9E	01	1D	00	72	51	D0	1E	20	6E	28	55	00
50		5A	00	00	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E
60		00	A0	5A	00	00	00	18	26	36	80	A0	70	38	1F	40
70		20	25	00	A0	5A	00	00	00	1A	00	00	00	00	00	4A

■ HDMI 3-FHD-10BIT (C/S : 033A)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	EE	91	A3	54	4C	99
20		0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01
30		01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58
40		45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E
50		6E	28	55	00	A0	5A	00	00	1E	00	00	00	FD	00	39
60		3F	1F	52	10	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	01	03

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		02	03	1F	F1	47	10	22	20	05	84	03	02	26	15	07
10		09	07	07	67	03	0C	00	10	00	B8	2D	E3	05	03	01
20		3A	80	18	71	38	2D	40	58	2C	04	05	A0	5A	00	00
30		1E	01	1D	80	18	71	1C	16	20	58	2C	25	00	A0	5A
40		00	00	9E	01	1D	00	72	51	D0	1E	20	6E	28	55	00
50		5A	00	00	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E
60		00	A0	5A	00	00	00	18	26	36	80	A0	70	38	1F	40
70		20	25	00	A0	5A	00	00	00	1A	00	00	00	00	00	3A

■ RGB-FHD (C/S : ED)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10		01	15	01	03	80	73	41	78	0A	EE	91	A3	54	4C	99
20		0F	50	54	A1	08	00	81	80	61	40	45	40	31	40	01
30		01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58
40		45	00	A0	5A	00	00	00	1E	01	1D	00	72	51	D0	1E
50		40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00
60		3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	FC
70		00	4C	47	20	54	56	0A	20	20	20	20	20	20	00	ED

■ HDMI 3-HD (C/S : 1BE2)

EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
20	09	48	4C	A1	08	00	81	C0	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
40	36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00	39
60	3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	1B

EDID Block 1, Bytes 128-255 [80H-FFH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	03	1F	F1	47	10	22	20	05	84	03	02	26	15	07	50
10	09	07	07	67	03	0C	00	30	00	80	2D	E3	05	03	01	02
20	3A	80	18	71	38	2D	04	58	2C	04	05	7E	8A	42	00	00
30	1E	01	1D	80	18	71	1C	16	20	58	2C	25	00	7E	8A	42
40	00	00	9E	01	1D	00	72	51	D0	1E	20	6E	28	55	00	7E
50	8A	42	00	00	1E	8C	0A	D0	8A	20	E0	2D	10	10	3E	96
60	00	7E	8A	42	00	00	18	26	36	80	A0	70	38	1F	40	30
70	20	25	00	7E	8A	42	00	00	1A	00	00	00	00	00	00	E2

■ RGB-HD (C/S : 6F)

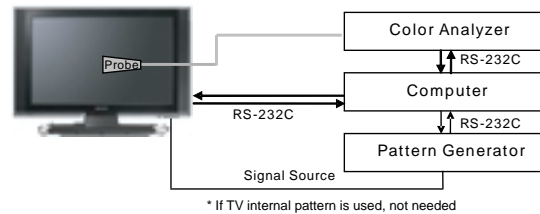
EDID Block 0, Bytes 0-127 [00H-7FH]

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01
10	01	15	01	03	80	73	41	78	0A	CF	74	A3	57	4C	B0	23
20	09	50	4E	A1	08	00	81	C0	01	01	01	01	01	01	01	01
30	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
40	36	00	7E	8A	42	00	00	1E	01	1D	00	72	51	D0	1E	20
50	6E	28	55	00	7E	8A	42	00	00	1E	00	00	00	FD	00	39
60	3F	1F	3C	09	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	6F

5.1.2. Equipment

- (1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14)
 - (2) Adj. Computer (During auto adj., RS-232C protocol is needed)
 - (3) Adjust Remocon
 - (4) Video Signal Generator MSPG-925F 720p/204-Gray(Model:217, Pattern:49)
-> Only when internal pattern is not available
- * Color Analyzer Matrix should be calibrated using CS-1000

5.1.3. Equipment connection



Connection Diagram of Automatic Adjustment

5.1.4. Adjustment Command (Protocol)

- (1) RS-232C Command used during auto-adj.

RS-232C COMMAND [CMD ID DATA]	Explanation
Wb 00 00	Begin White Balance adj.
Wb 00 ff	End White Balance adj. (internal pattern disappears)

(2) Adjustment Map

Adj.	item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	TBD
	G Gain	j	h	00	C0	TBD
	B Gain	j	i	00	C0	TBD
	R Cut					TBD
	G Cut					TBD
	B Cut					TBD
Medium	R Gain	j	a	00	C0	TBD
	G Gain	j	b	00	C0	TBD
	B Gain	j	c	00	C0	TBD
	R Cut					TBD
	G Cut					TBD
	B Cut					TBD
Warm	R Gain	j	d	00	C0	TBD
	G Gain	j	e	00	C0	TBD
	B Gain	j	f	00	C0	TBD
	R Cut					TBD
	G Cut					TBD
	B Cut					TBD

5. Final Assembly Adjustment

5.1. White Balance Adjustment

5.1.1. Overview

5.1.1.1. W/B adj. Objective & How-it-works

- (1) Objective: To reduce each Panel's W/B deviation
- (2) How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.
- (3) Adj. condition: normal temperature
 - 1) Surrounding Temperature: 25±5°C
 - 2) Warm-up time: About 5 Min
 - 3) Surrounding Humidity: 20% ~ 80%
 - 4) Before White balance adjustment, Keep power on status, don't power off

5.1.1.2. Adj. condition and cautionary items

- (1) Lighting condition in surrounding area surrounding lighting should be lower 10 lux.
Try to isolate adj. area into dark surrounding.
- (2) Probe location: Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)
- (3) Aging time
 - After Aging Start, Keep the Power ON status during 5 Minutes.
 - In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

5.1.5. Adjustment method

5.1.5.1 Auto WB calibration

- (1) Set TV in ADJ mode using P-ONLY key (or POWER ON key)
- (2) Place optical probe on the center of the display
- It need to check probe condition of zero calibration before adjustment.
- (3) Connect RS-232C Cable
- (4) Select mode in ADJ Program and begin a adjustment.
- (5) When WB adjustment is completed with OK message, check adjustment status of pre-set mode (Cool, Medium, Warm)
- (6) Remove probe and RS-232C cable.

- W/B Adj. must begin as start command "wb 00 00" , and finish as end command "wb 00 ff", and Adj. offset if need

5.1.5.2 Manual adj. method

- 1) Set TV in Adj. mode using POWER ON
- 2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface..
- 3) Press ADJ key -> EZ adjust using adj. R/C 6. White-Balance then press the cursor to the right (KEYG). (When KEY(G) is pressed 204 Gray(80IRE) internal pattern will be displayed)
- 4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.
- 5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

5.1.6 Reference (White Balance Adj. coordinate and color temperature)

- Luminance: 204 Gray, 80IRE
- Standard color coordinate and temperature using CS-1000 (over 26 inch)

Mode	Color Coordination		Temp	ΔUV
	x	y		
COOL	0.269	0.273	13000K	0.0000
MEDIUM	0.285	0.293	9300K	0.0000
WARM	0.313	0.329	6500K	0.0000

- Standard color coordinate and temperature using CA-210(CH 14)

Mode	Color Coordination		Temp	ΔUV
	x	y		
COOL	0.269±0.002	0.273±0.002	13000K	0.0000
MEDIUM	0.285±0.002	0.293±0.002	9300K	0.0000
WARM	0.313±0.002	0.329±0.002	6500K	0.0000

- Standard color coordinate and temperature using CA-210(CH-14) – by aging time

GP3	Aging time (Min)	Cool		Medium		Warm	
		X	Y	X	Y	X	Y
		269	273	285	293	313	329
1	0-2	279	288	285	308	319	338
2	3-5	278	288	294	306	318	336
3	6-8	277	285	293	305	317	335
4	10-18	276	283	292	303	316	333
5	20-35	274	280	290	300	314	330
6	36-49	272	277	288	297	312	327
7	50-79	271	275	287	295	311	325
8	80-149	270	274	286	294	310	324
9	Over 150	269	273	285	293	309	323

* Only Edge-LED LGD Module

5.2. Option selection per country

5.2.1. Overview

- (1) Tool option selection is only done for models in Non-USA North America due to rating
- (2) Applied model: LA02D and LA02E Chassis applied to CANADA and MEXICO

5.2.2. Country Group selection

- (1) Press ADJ key on the Adj. R/C, and then select Country Group Menu
- (2) Depending on destination, select KR or US, then on the lower Country option, select US, CA, MX. Selection is done using +, - KEY

5.2.3. Tool Option inspection

- Press Adj. key on the Adj. R/C, then select Tool option.

Model	Module	Tool 1	Tool 2	Tool 3	Tool 4	Tool 5
32LV2500-UG 32LV2520-UJ	LGD	18208	19478	55339	2588	16672
32LV3500-UG 32LV3520-UJ	LGD	18272	19478	55337	2588	16672
37LV3500-UG	LGD	22368	19478	55339	2588	16672
42LV3500-UG 42LV3520-UJ	LGD	26464	19478	55337	2588	16672
47LV3500-UG	LGD	34656	19478	55338	2588	16640
32LV3400-NG	LGD	18400	9226	53289	2584	16416
32LV3400-NG	IPS	18416	9226	53289	2584	16480
42LV3400-NG	LGD	26592	9226	53289	2584	16416
32LV3500-NG 32LV3510-NH 32LV3520-NJ	LGD	18272	19478	55337	2584	16416
32LV3500-NG 32LV3510-NH 32LV3520-NJ	IPS	18288	19478	55337	2584	16480
42LV3500-NG 42LV3510-NH 42LV3520-NJ	LGD	26464	19478	55337	2584	16416
47LV3500-NG 47LV3510-NH 47LV3520-NJ	LGD	34656	19478	55337	2584	16384
26LK330-UH	AUD	13896	18966	51209	2584	290
32LK330-UH	LGD	17984	18966	55305	2584	290
32LK330-UH	AUD	17992	18966	55307	2584	290
32LK430-UG	AUD	18024	19478	51211	2584	290
42LK430-UG	LGD	26208	19478	51209	2584	8450
32LK450-UH	AUD	18056	19478	55308	2584	290
37LK450-UH	LGD	22144	19478	55307	2584	8450
37LK450-UH	AUD	22152	19478	55306	2584	290
42LK450-UH	LGD	26240	19478	55305	2584	8450
42LK450-UH	AUD	26248	19478	55305	2584	290
47LK450-UH	LGD	34432	19478	55307	2584	8450
26LK330-NH	AUD	13896	18966	51209	2584	34
32LK330-NH	LGD	17984	18966	51209	2584	34
32LK330-NH	IPS	18000	18966	51209	2584	34
42LK430-NG	LGD	26208	19478	51209	2584	8194

6. GND and Hi-pot Test

6.1. GND & HI-POT auto-check preparation

- (1) Check the POWER CABLE and SIGNAL CABLE insertion condition

6.2. GND & HI-POT auto-check

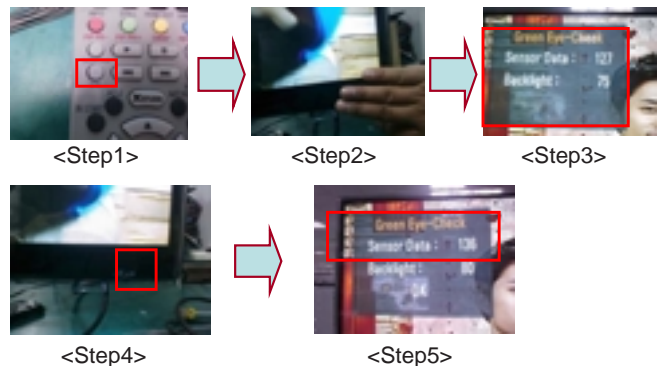
- (1) Pallet moves in the station. (POWER CORD / AV CORD is tightly inserted)
- (2) Connect the AV JACK Tester.
- (3) Controller (GWS103-4) on.
- (4) GND Test (Auto)
 - If Test is failed, Buzzer operates.
 - If Test is passed, execute next process (Hi-pot test). (Remove A/V CORD from A/V JACK BOX)
- (5) HI-POT test (Auto)
 - If Test is failed, Buzzer operates.
 - If Test is passed, GOOD Lamp on and move to next process automatically.

6.3. Checkpoint

- TEST voltage
 - GND: 1.5KV/min at 100mA
 - SIGNAL: 3KV/min at 100mA
- TEST time: 1 second
- TEST POINT
 - GND TEST = POWER CORD GND & SIGNAL CABLE METAL GND
 - Internal Pressure TEST = POWER CORD GND & LIVE & NEUTRAL
- LEAKAGE CURRENT: At 0.5mArms

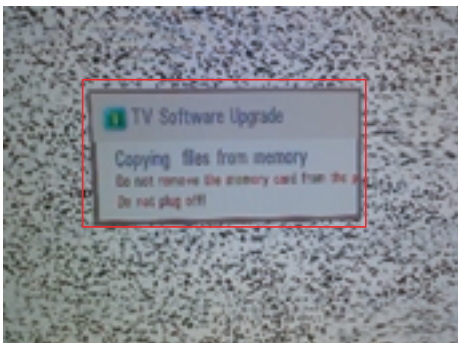
7. EYE-Q Check

- Step 1) Turn on the TV.
- Step 2) Press EYE button in adjust remote control.
- Step 3) Stay 6 seconds with Eye Q sensor hidden located on the front of the set.
- Step 4) Check the "Sensor Data" on the screen and check whether the value is lower than after 6 seconds, the value does not go below 10, Eye Q sensor is not working properly. Then, change the sensor.
- Step 5) Remove hand from the Eye Q II sensor and stay for 6 seconds.
- Step 6) Check whether the "Back Light (xxx)" value has risen on the screen. If after 6 seconds and the value still does not go high, the eye Q II sensor is not working properly. Replace the sensor.

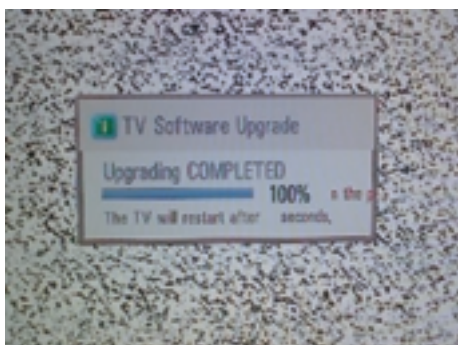
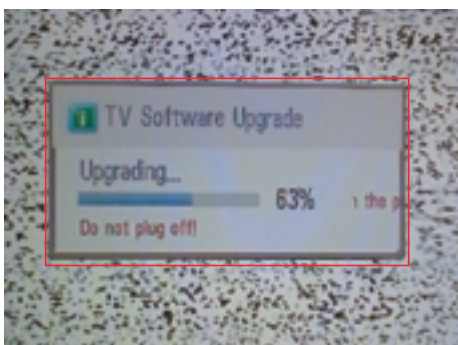


8. USB S/W Download (Option, Service only)

1. Put the USB Stick to the USB socket
2. Automatically detecting update file in USB Stick
 - If your downloaded program version in USB Stick is Low, it didn't work. But your downloaded version is High, USB data is automatically detecting
3. Show the message "Copying files from memory"



4. Updating is starting.



5. Updating Completed, The TV will restart automatically
6. If your TV is turned on, check your updated version and Tool option. (Explain the Tool option, next stage)

* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. if all channel data is cleared, you didn't have a DTV/ATV test on production line.

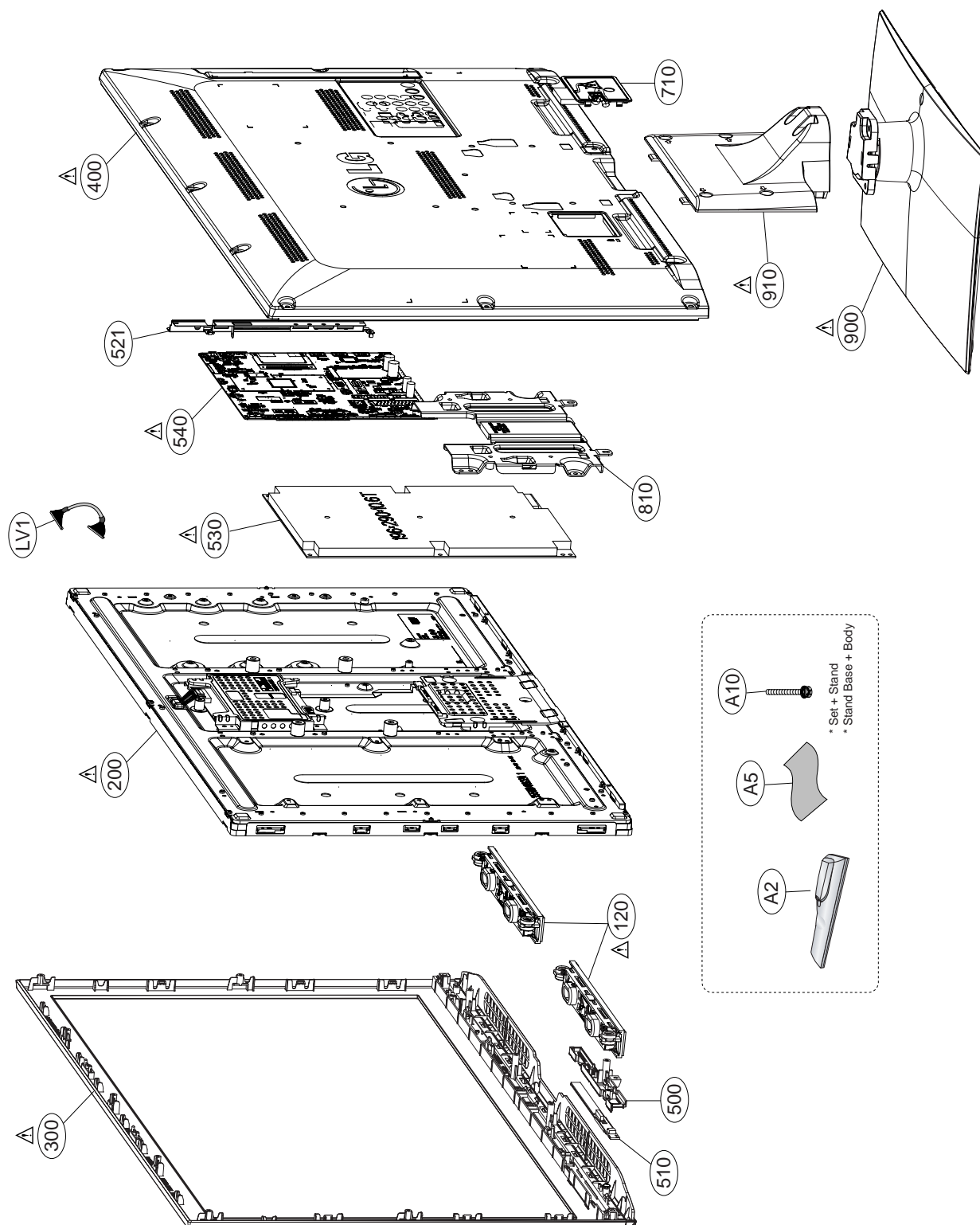
*** After downloading, have to adjust TOOL OPTION again.**

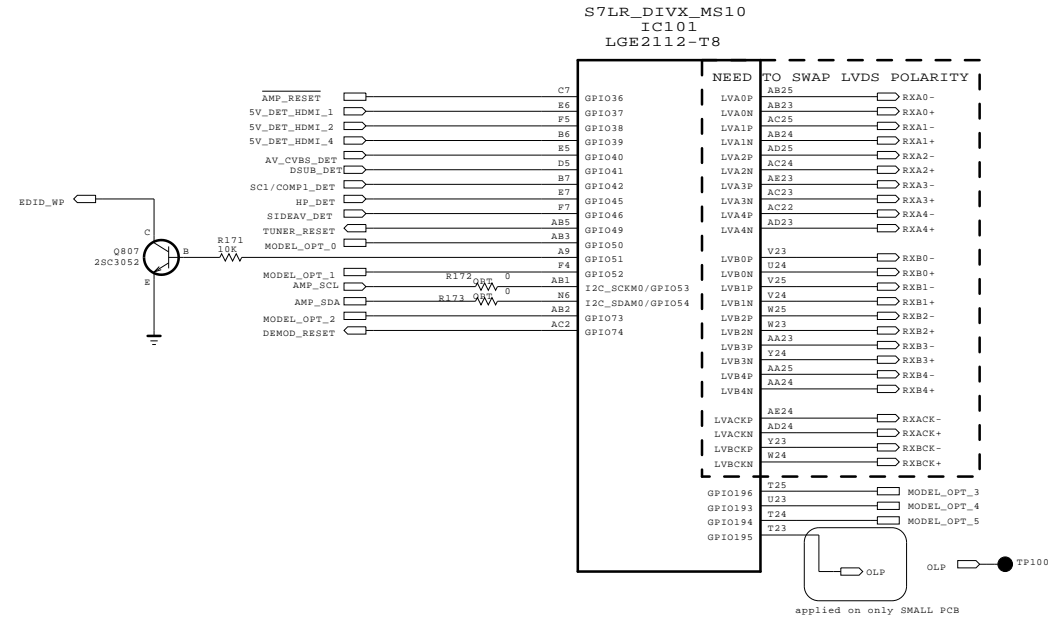
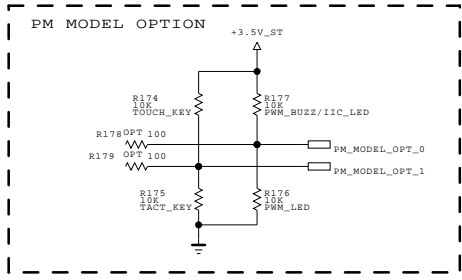
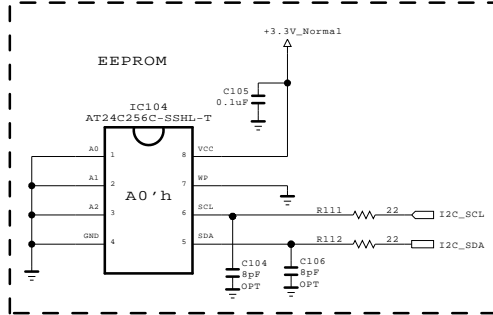
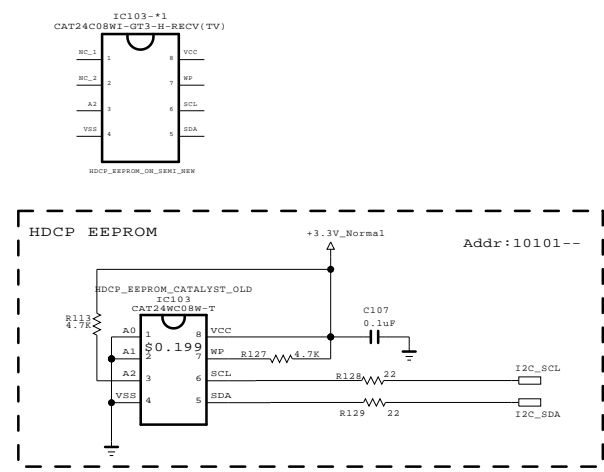
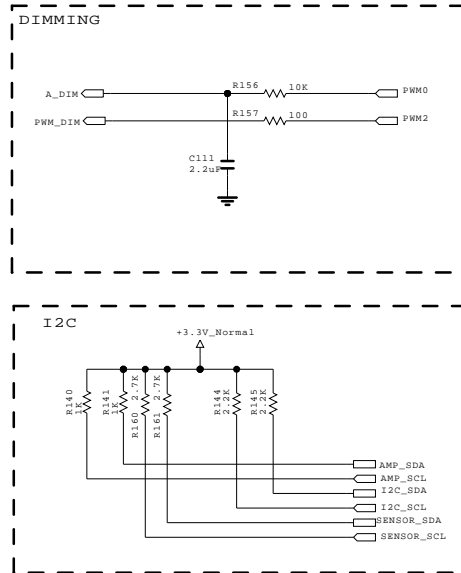
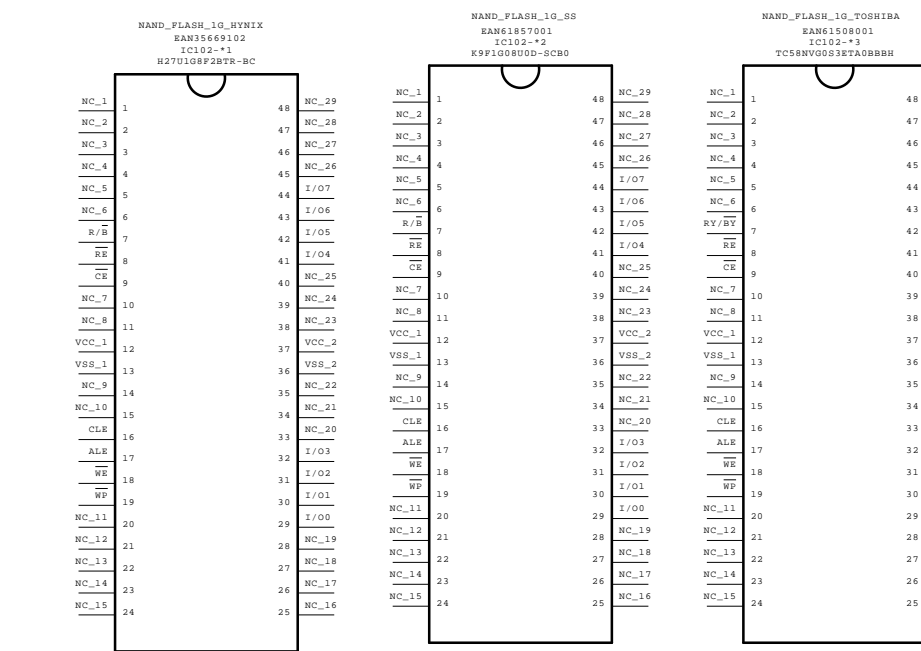
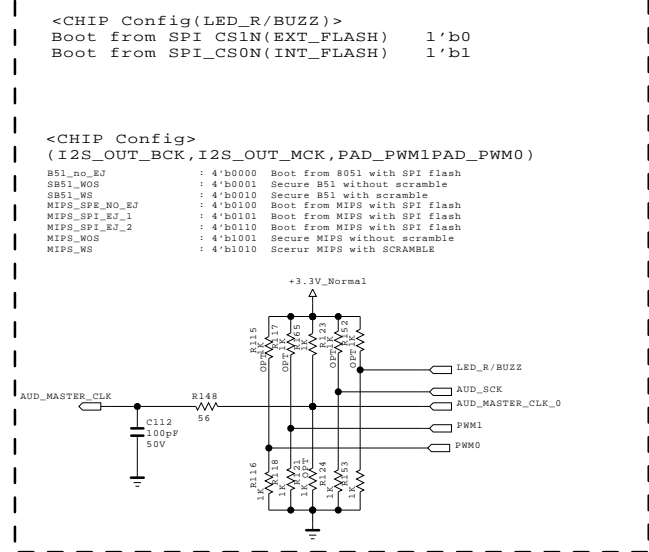
1. Push "IN-START" key in service remote controller.
2. Select "Tool Option 1" and Push "OK" button.
3. Punch in the number. (Each model has their number.)

EXPLODED VIEW

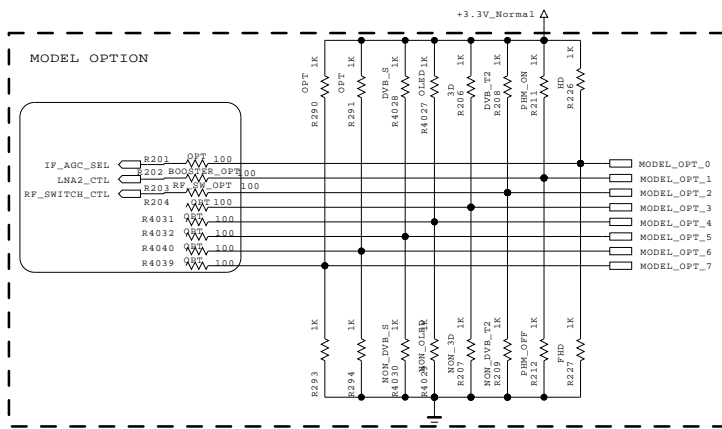
IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by Δ in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.



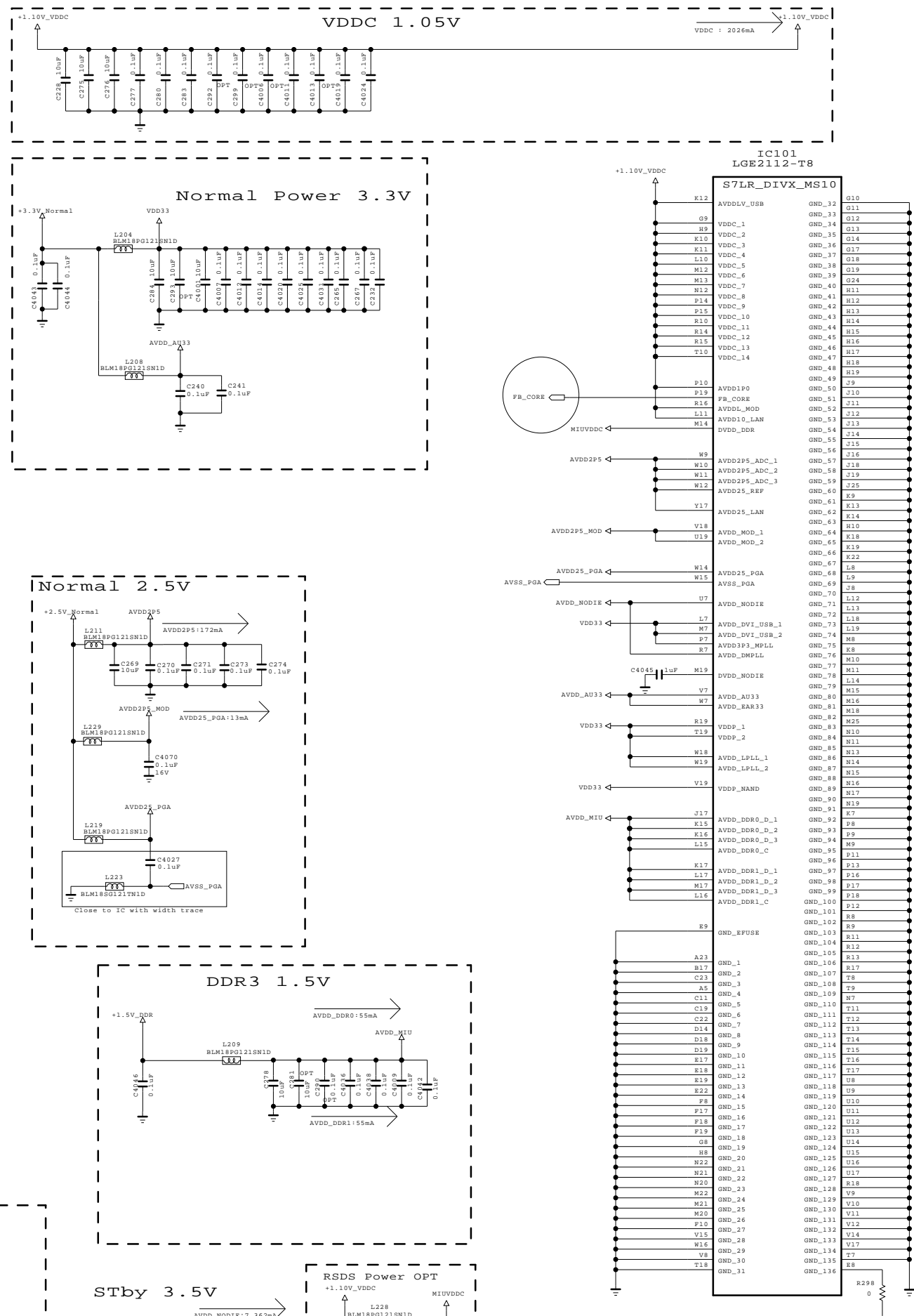
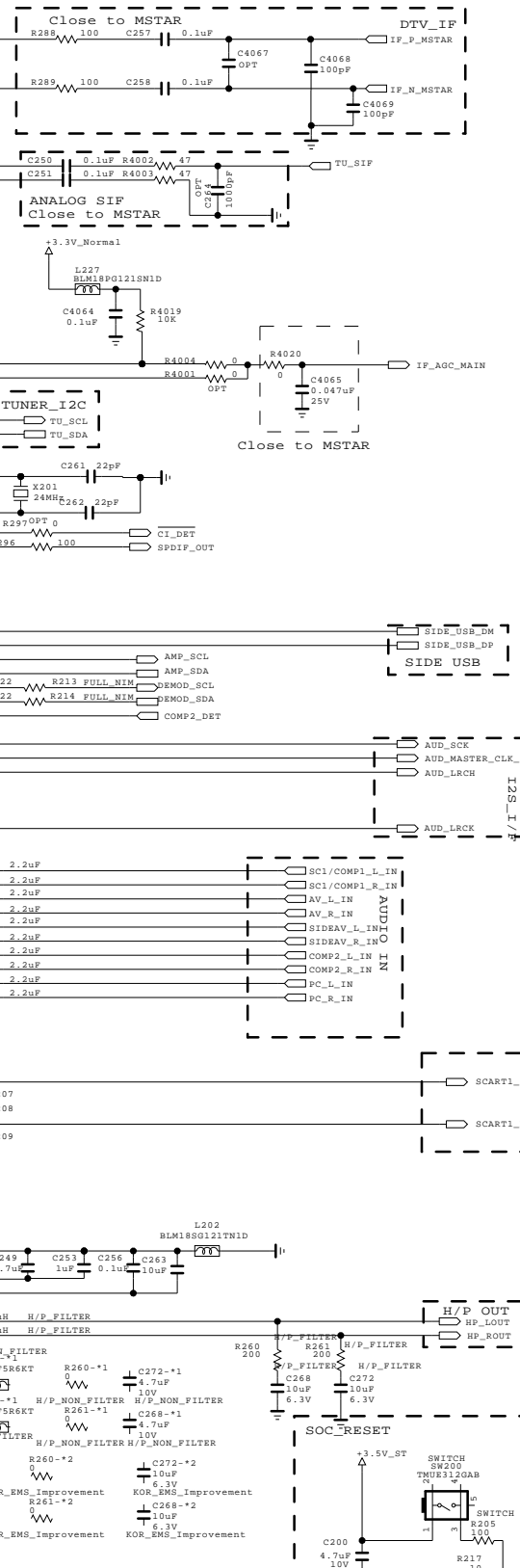
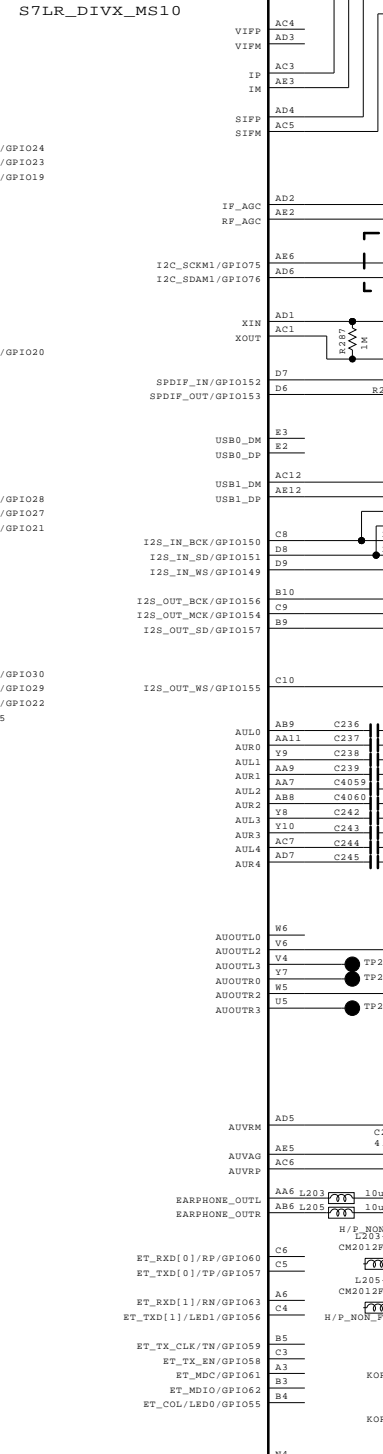
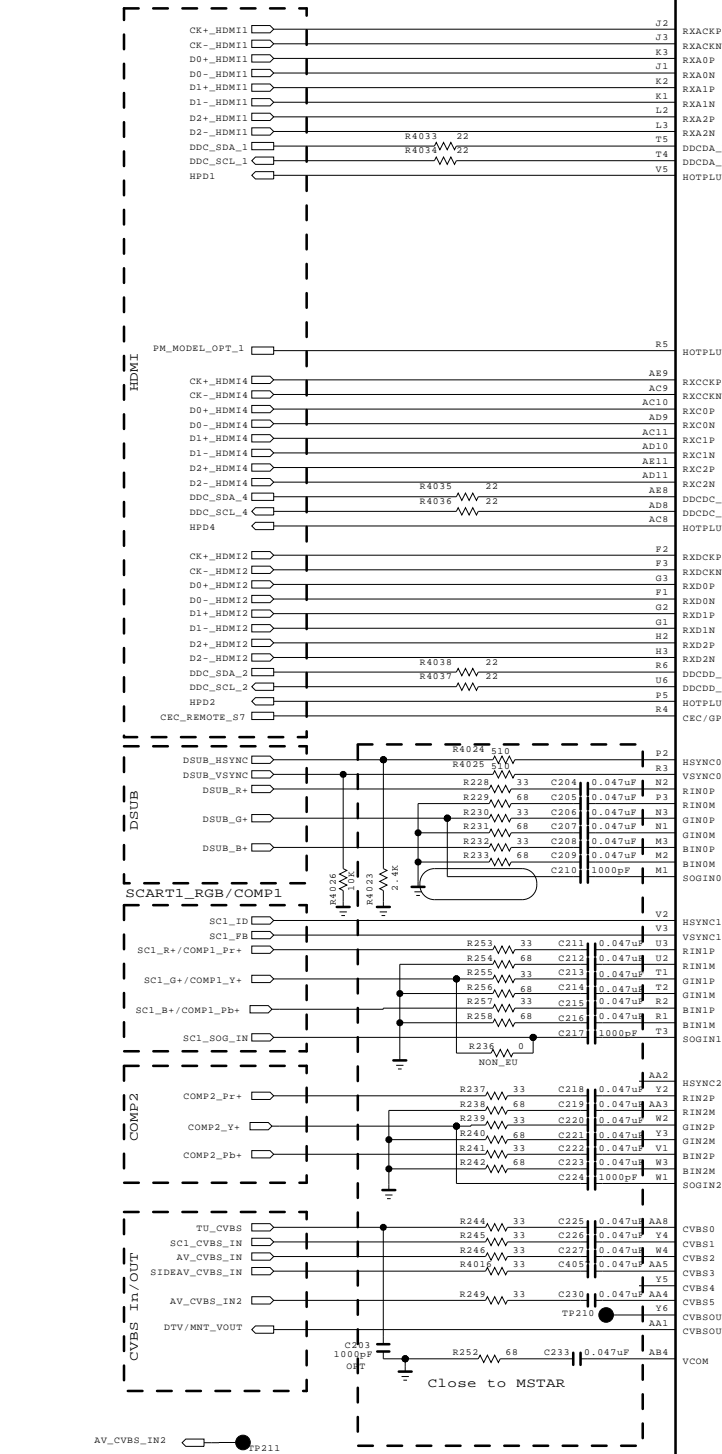


MODEL	GP3_S7LR	DATE	20110511
BLOCK	FLASH/EEPROM/GPIO	SHEET	1 /



MODEL OPTION			
PIN NAME	PIN NO.	LOW	HIGH
MODEL_OPT_0	AB3	FHD	HD
MODEL_OPT_1	F4	PHM_OFF	PHM_ON
MODEL_OPT_2	AB2	NON_DVB_T2	DVB_T2
MODEL_OPT_3	T25	NON_3D	3D
MODEL_OPT_4	U23	NON_OLED	OLED
MODEL_OPT_5	T24	NON_DVB_S	DVB_S
MODEL_OPT_6	B8	READY	READY
MODEL_OPT_7	A8	READY	READY

IC101
LGE2112-T8



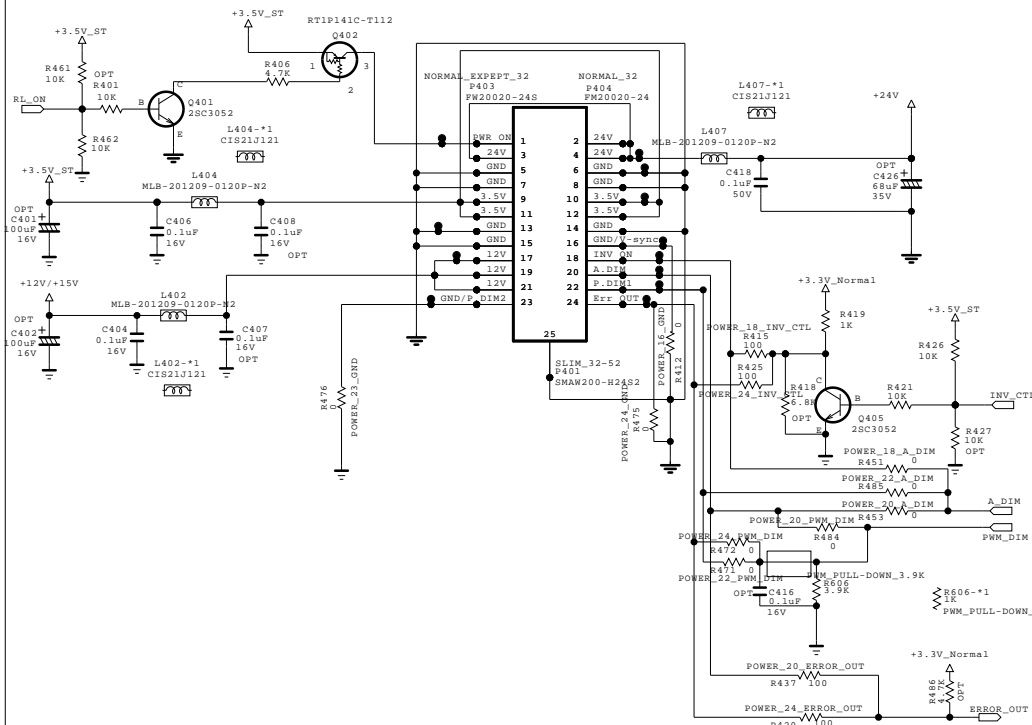
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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LGElectronics



MODEL	GP3_S7LR	DATE	20110511
BLOCK	MAIN2, HW OPT	SHEET	2

FROM LIPS & POWER B/D



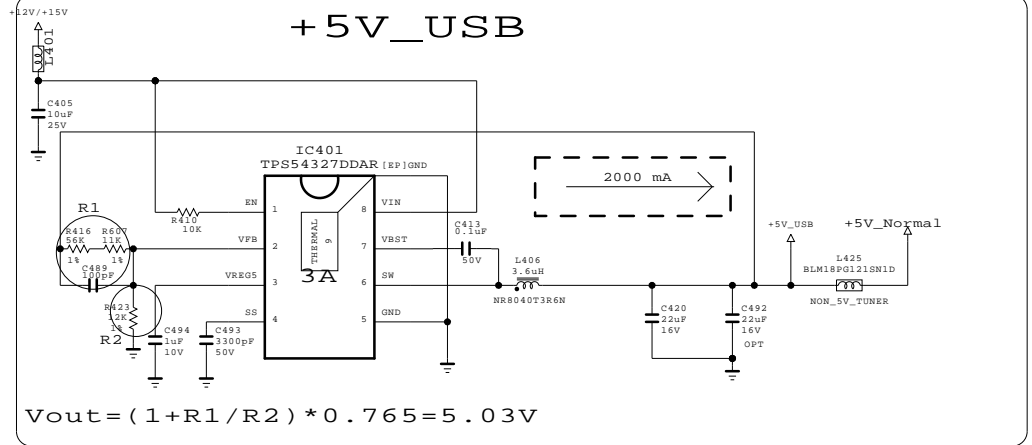
<MODULE PIN MAP>

PIN No	LGD (PSU) or LIPS	CM010*Lamp (PSU)	AUO 10*Lamp (PSU)	SHARP (PSU)	IPS-@ (PSU)
16	GND	GND	GND	GND	GND
18	INV_ON	A-DIM	INV_ON	INV_ON	INV_ON
20	VBR-A	NC	Err_out	Err_out	Err_out
22	PWM_DIM	PWM_DIM	NC	60:NC	NC
24	Err_out	INV_ON	PWM_DIM	26/32/52:GND	PWM_DIM
23	GND	GND	GND	GND	GND

<LED MODULE PIN MAP -> latest update 20100618>

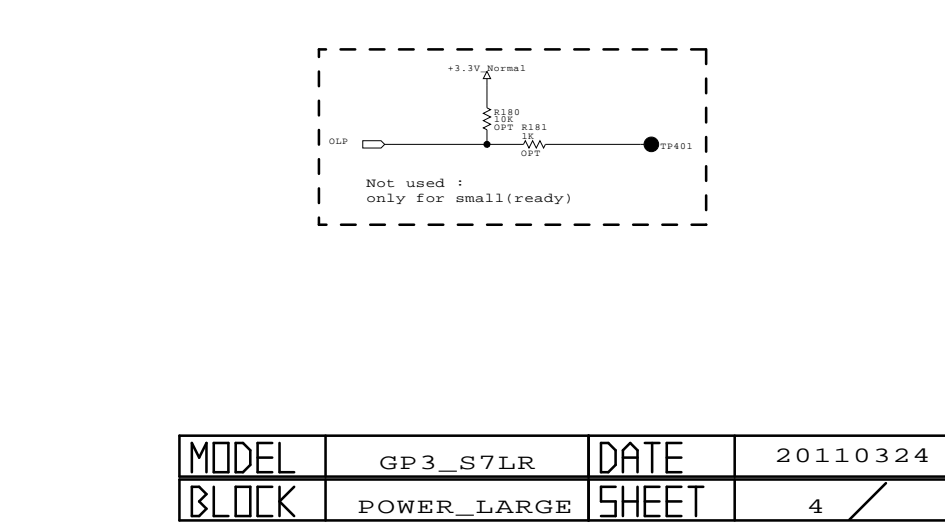
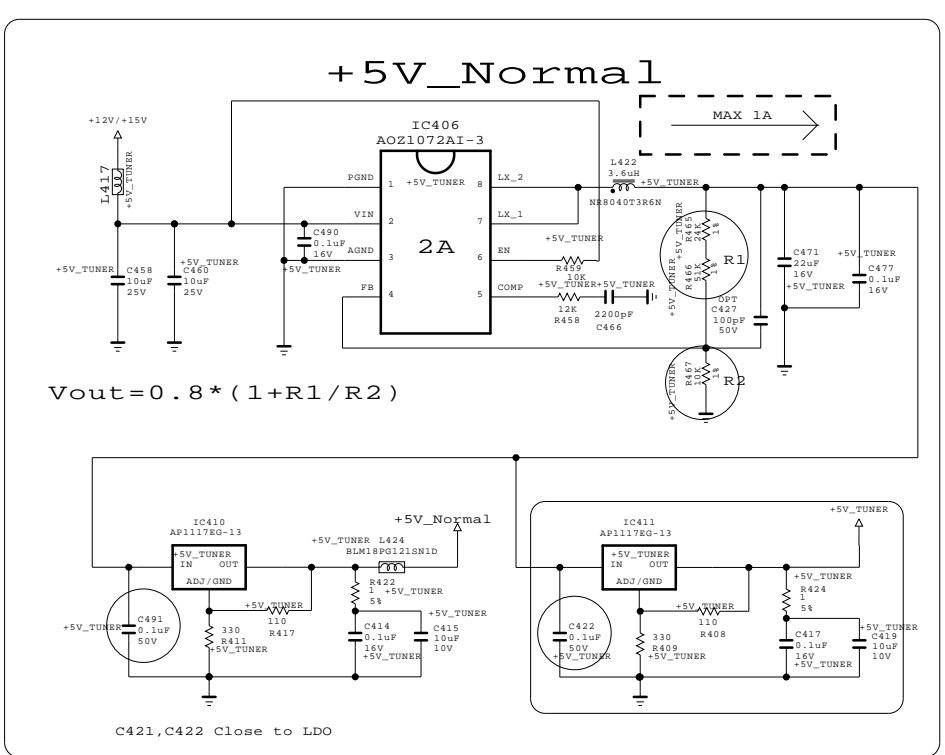
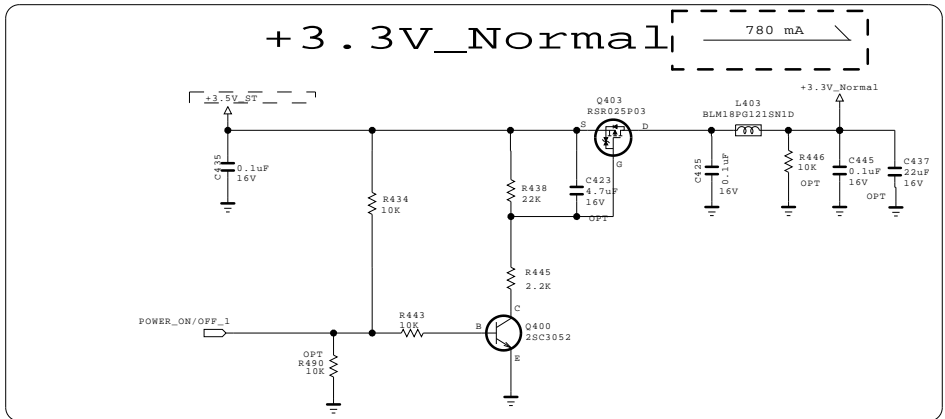
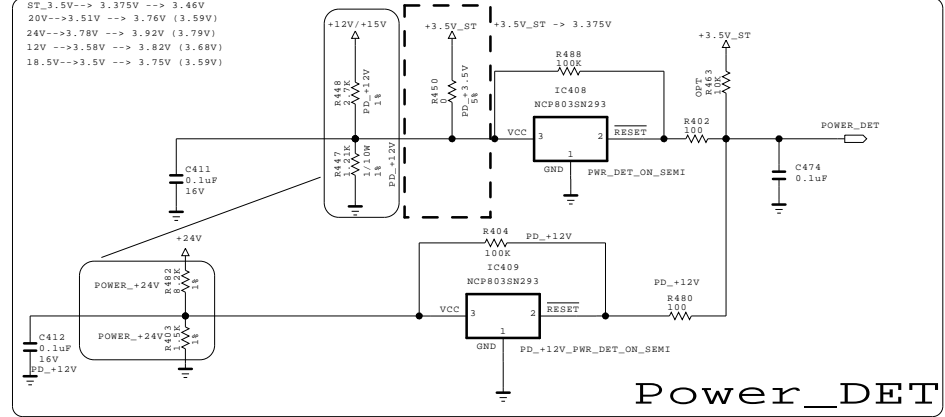
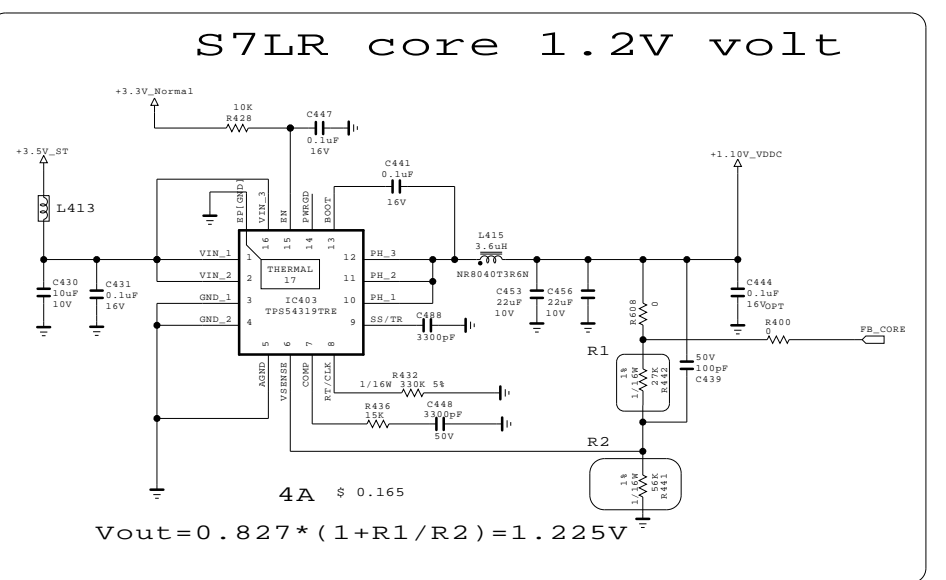
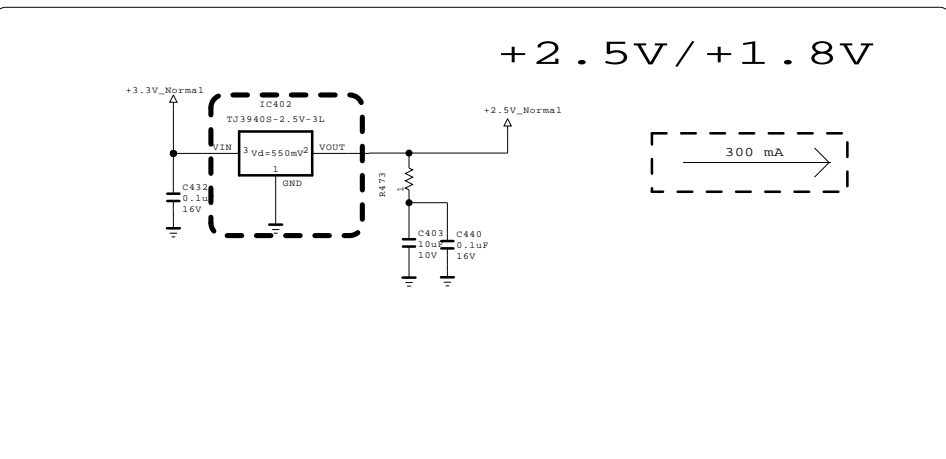
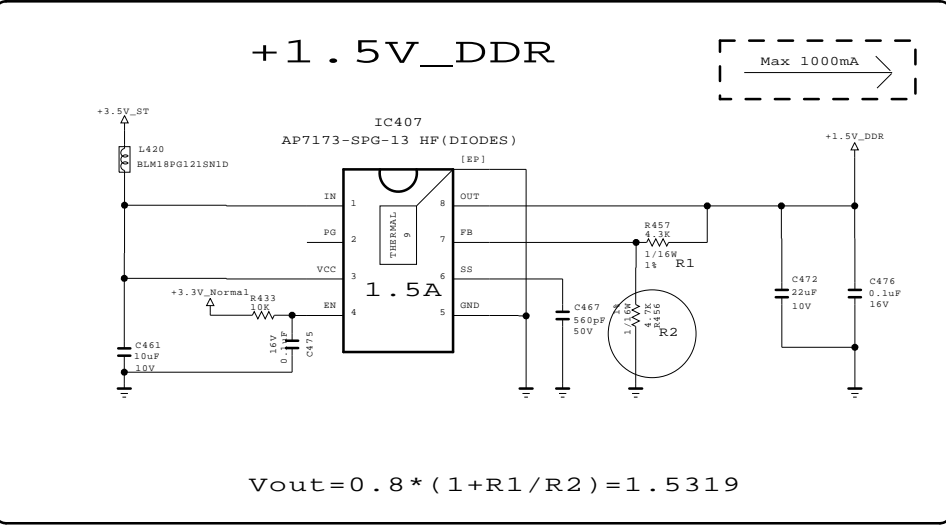
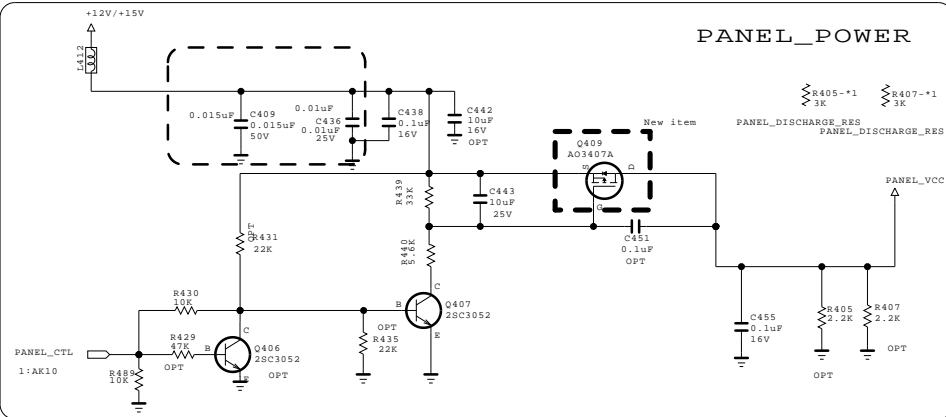
PIN No	LGD LFB/ OS LFB	32LE5300-TA CM010*LED (PSU)	32LE5300-TA AUO 10*LED (PSU)	32LE5300-TA LGD 10*LED (PSU)	
16	NC	NC	NC	NC	
18	INV_ON	INV_ON	INV_ON	INV_ON	
20	NC	err_out --> NC	err_out --> NC	NC	
22	PWM_DIM	NC	NC	PWM_DIM	
24	err_out --> NC	PWM_DIM	PWM_DIM	err_out --> NC	
23	NC	NC	NC	NC	

LGD edge led error-out use or not? checking is necessary...



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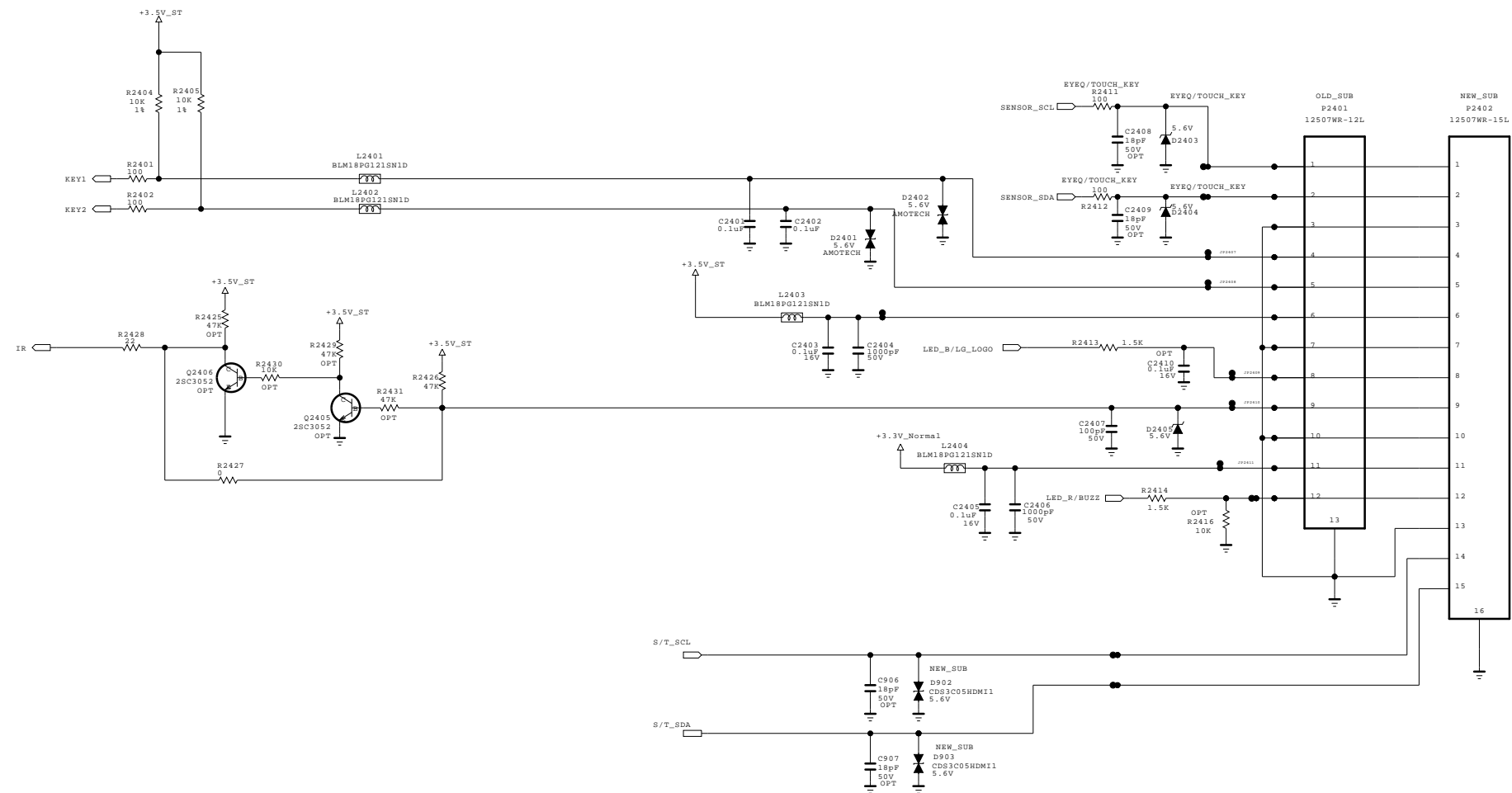
SECRET
LGElectronics





MODEL	GP3_S7LR	DATE	20110324
BLOCK	POWER_LARGE	SHEET	4



CONTROL
IR & LED

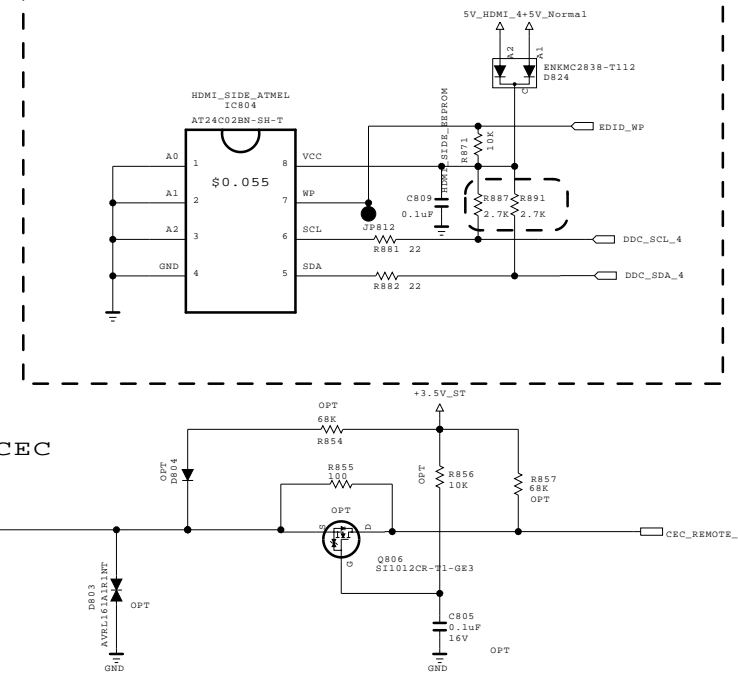
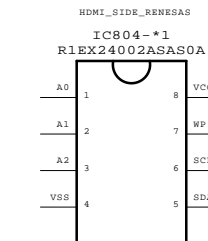
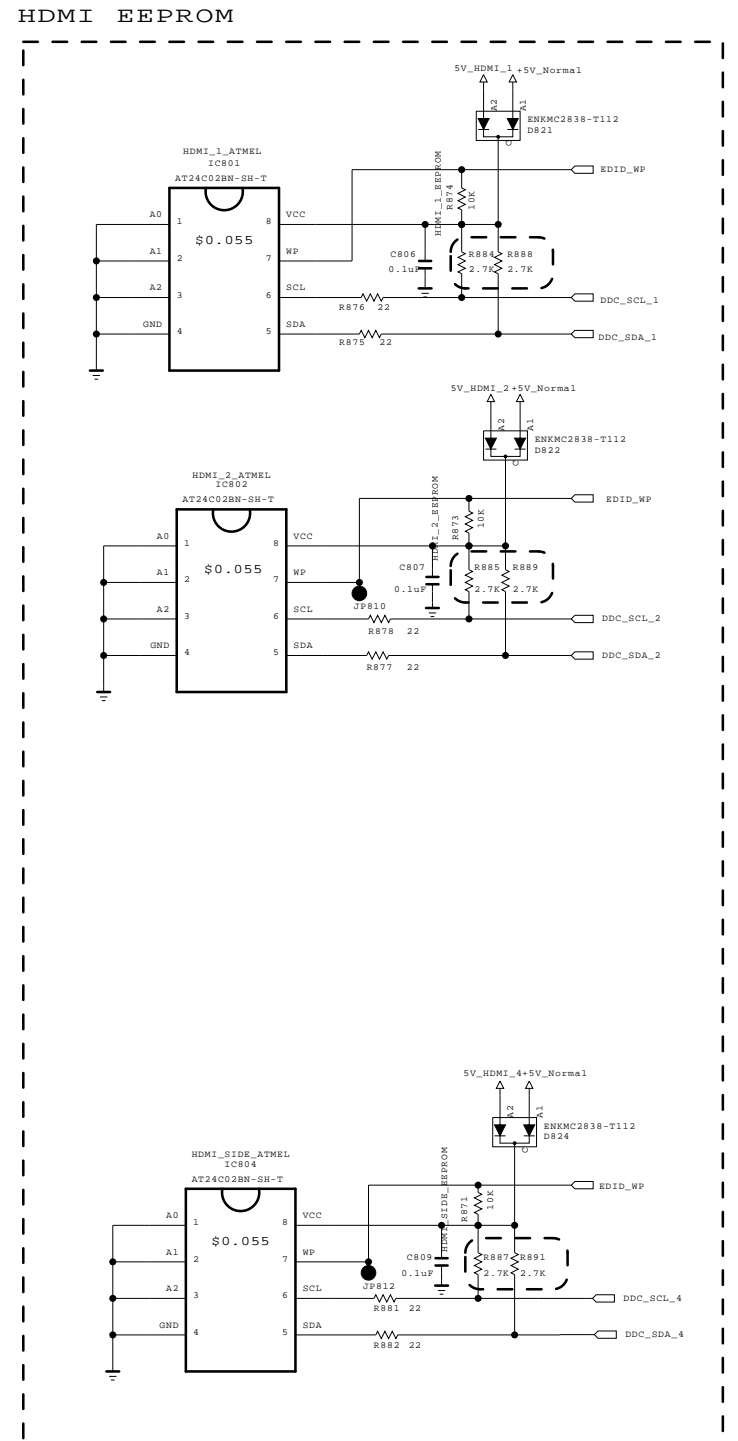
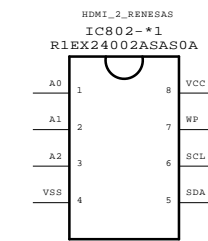
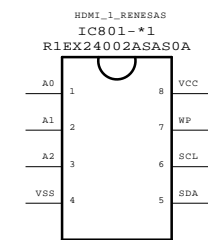
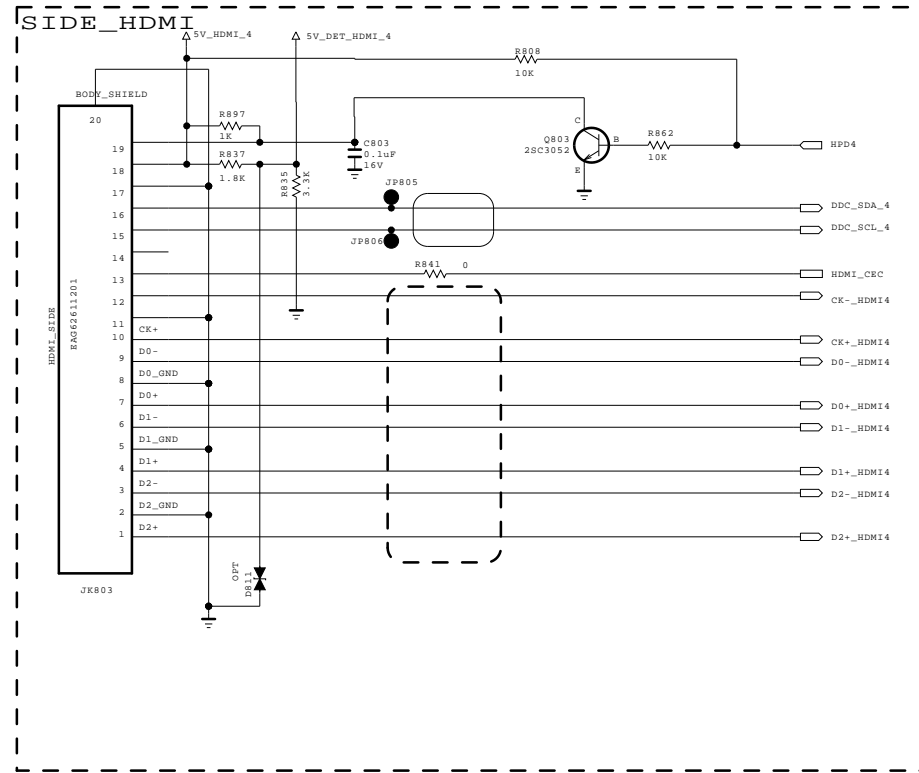
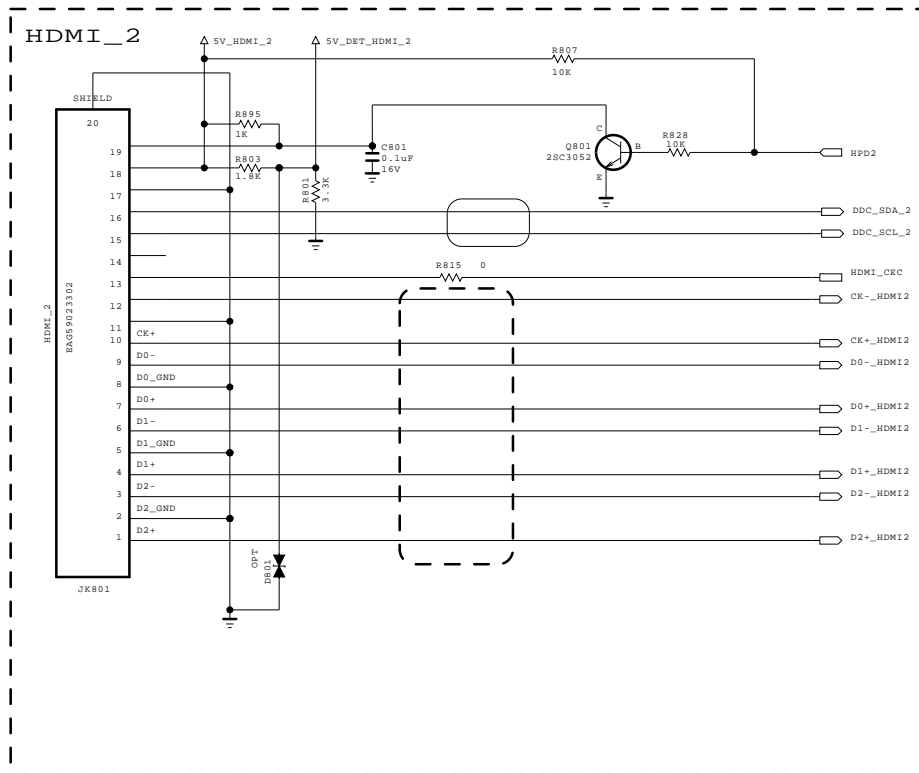
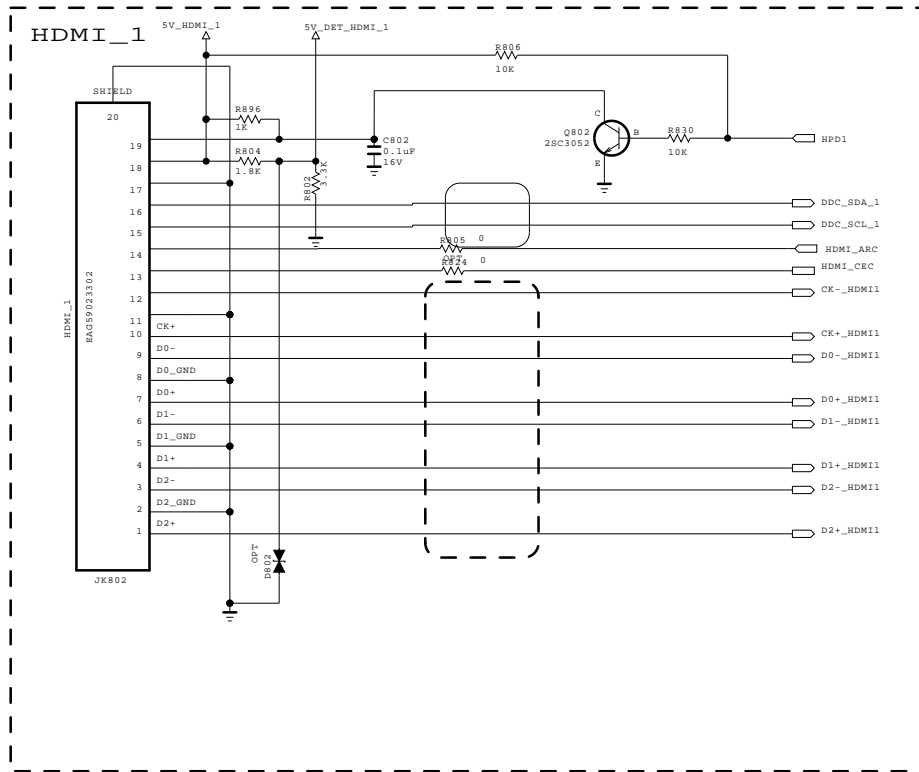




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SECRET
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MODEL	GP3_S7LR	DATE	20110324
BLOCK	IR/CONTROL-L	SHEET	6 /



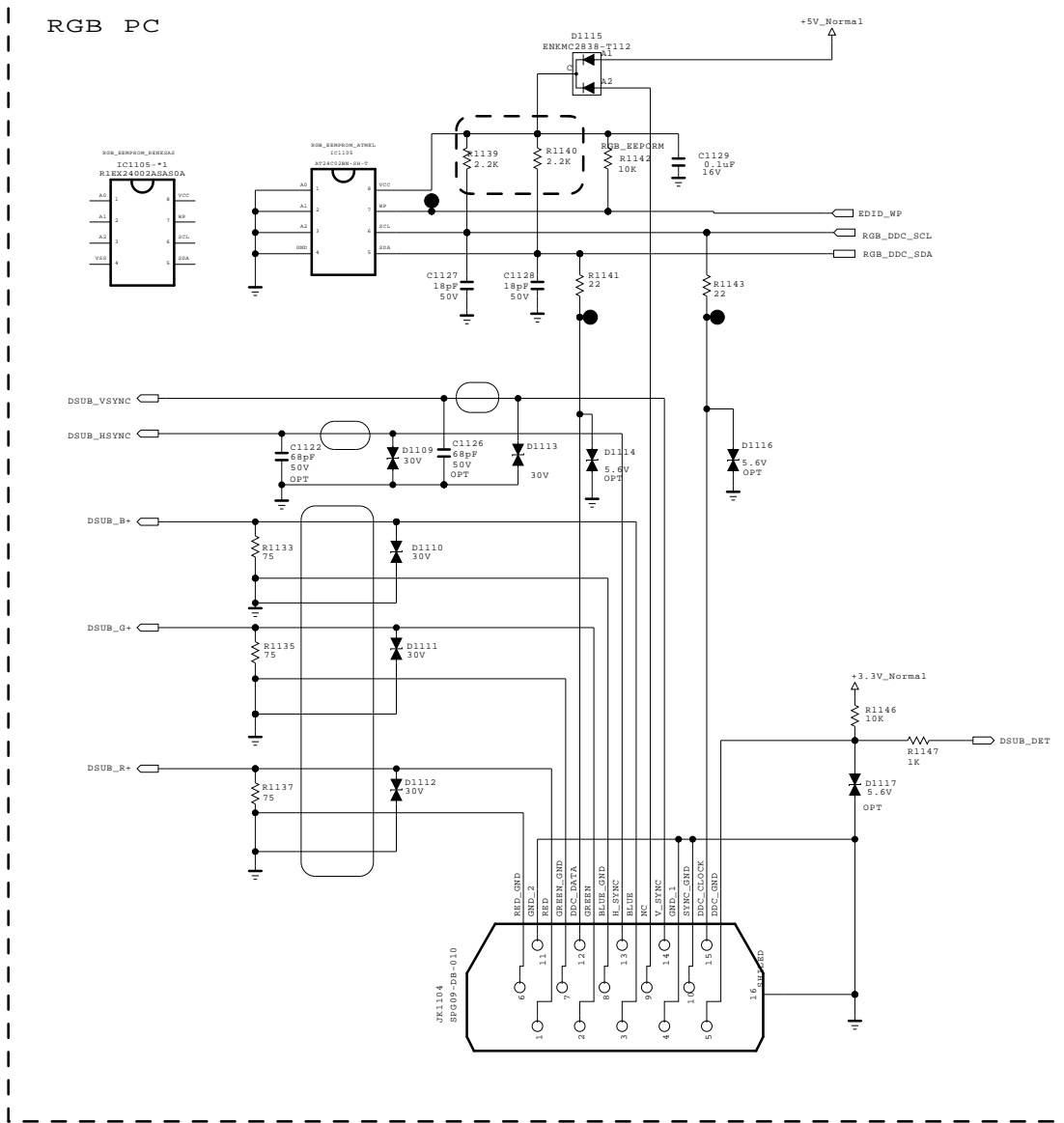
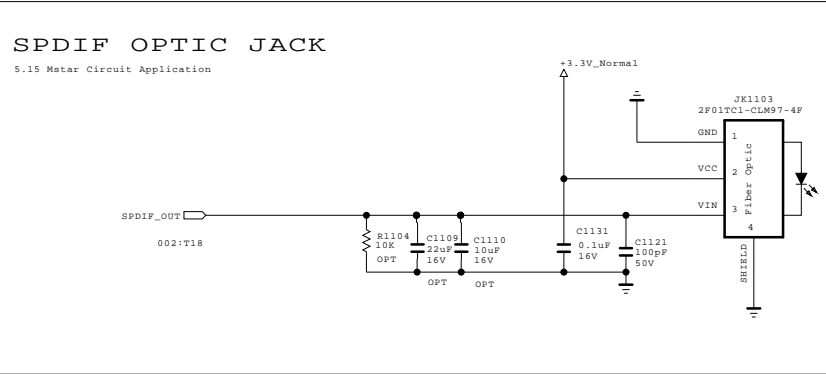
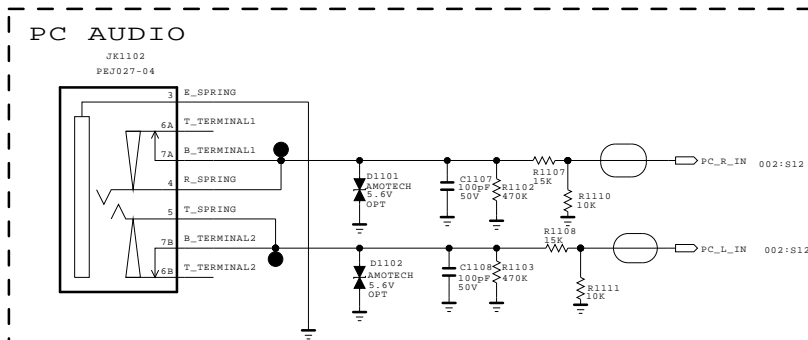
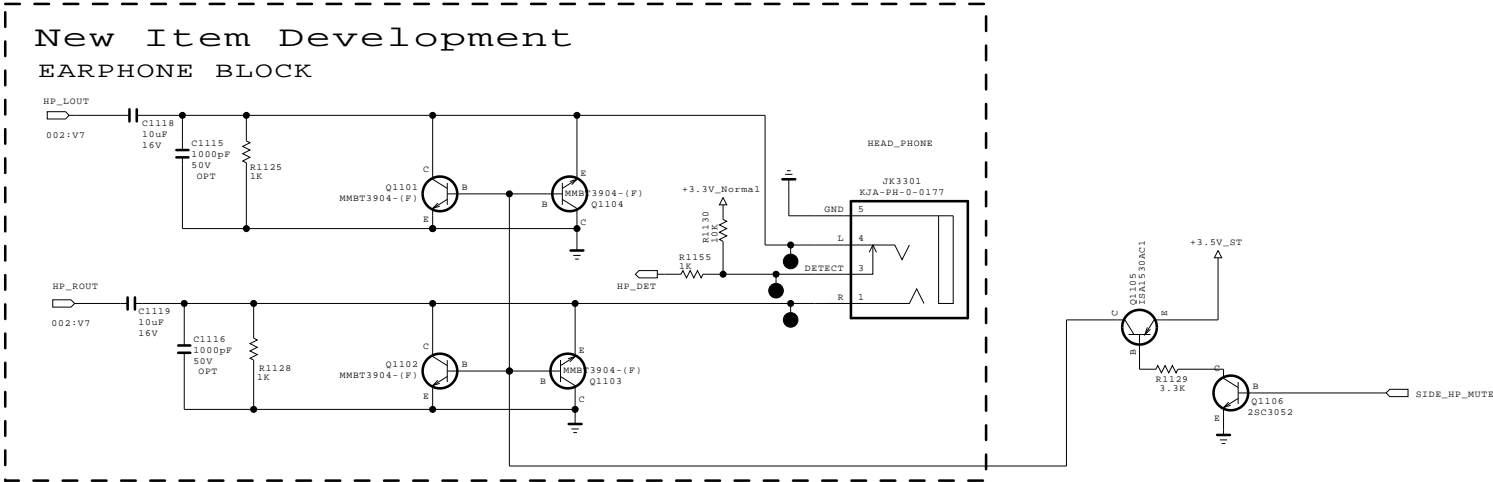
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LG ELECTRONICS

MODEL	GP3_S7LR	DATE	20110324
BLOCK	HDMI	SHEET	8

RGB / SPDIF / PC / HP



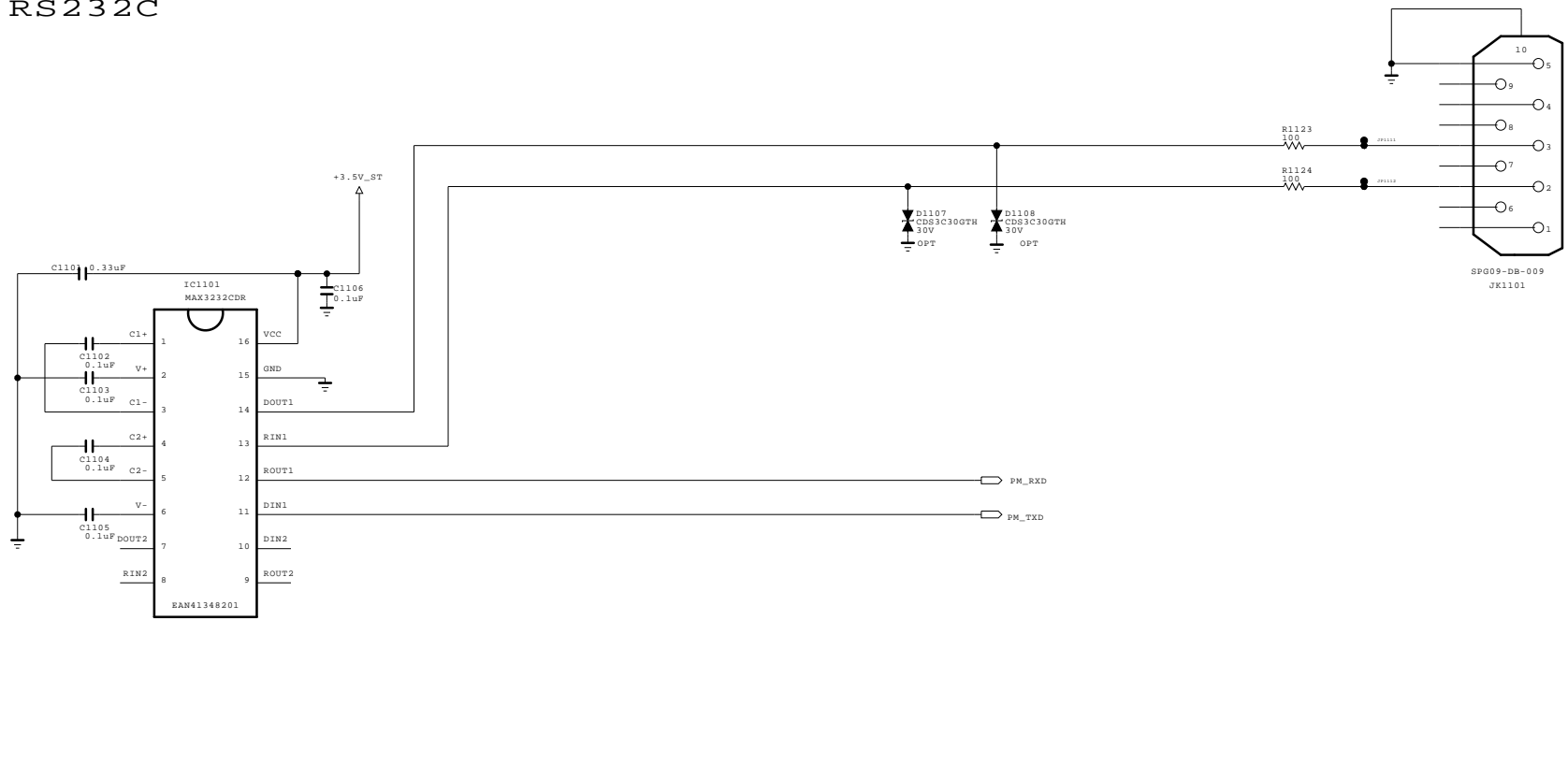
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 LG ELECTRONICS

MODEL	GP3_S7LR	DATE	20110324
BLOCK	RGB / SPDIF / HP	SHEET	9 /

RS232C



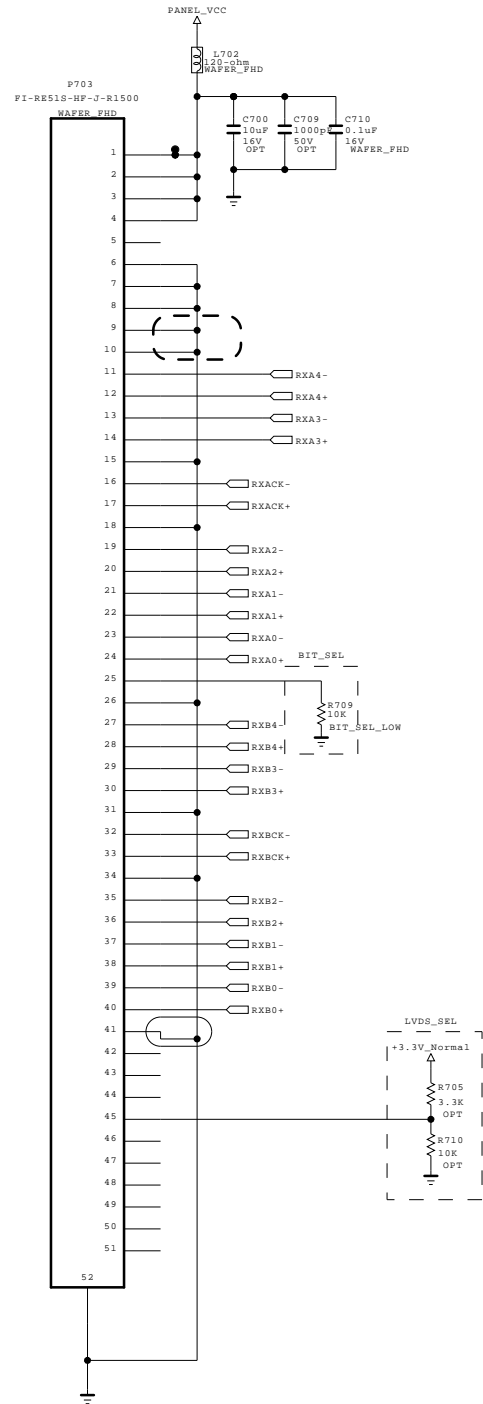
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

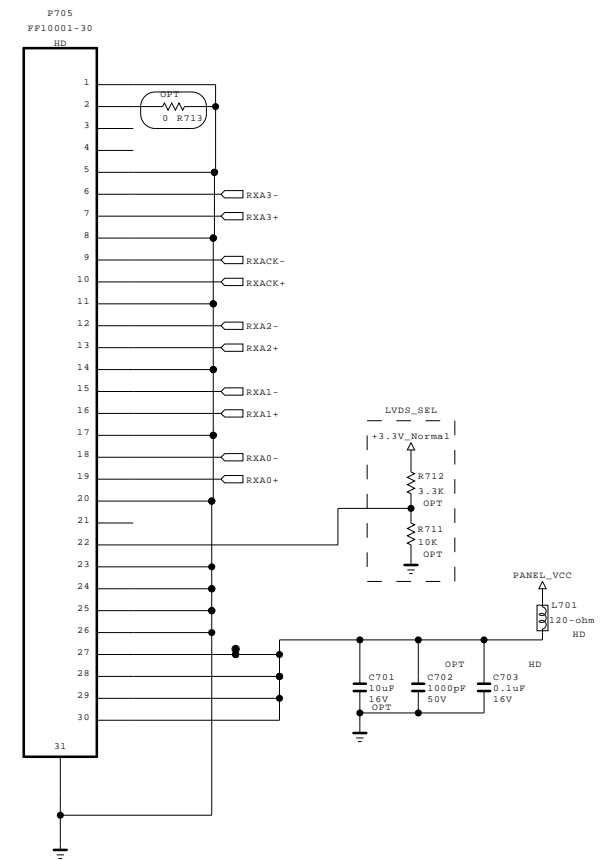




MODEL	GP3_S7LR	DATE	20110324
BLOCK	RS232C_9PIN	SHEET	10 /

[51Pin LVDS Connector]
(For FHD 60/120Hz)



[30Pin LVDS Connector]
(For HD 60Hz_Normal)

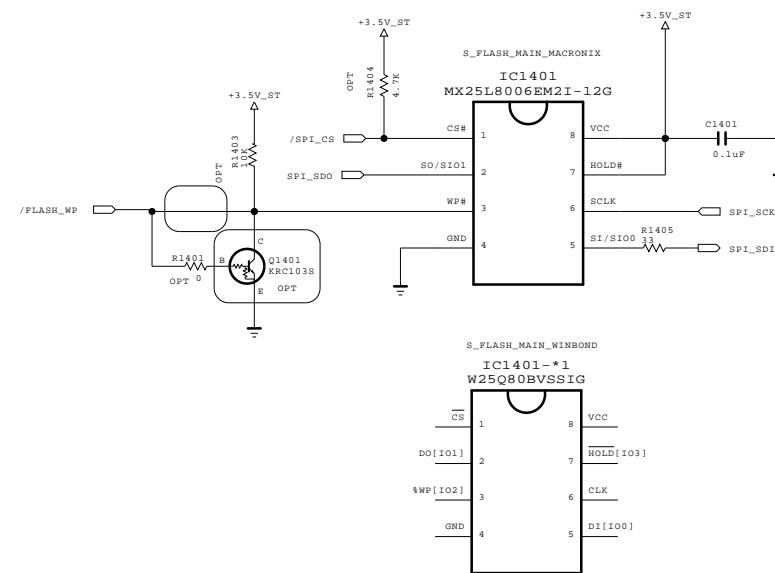




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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110324
BLOCK	LVDS_LARGE	SHEET	11 /



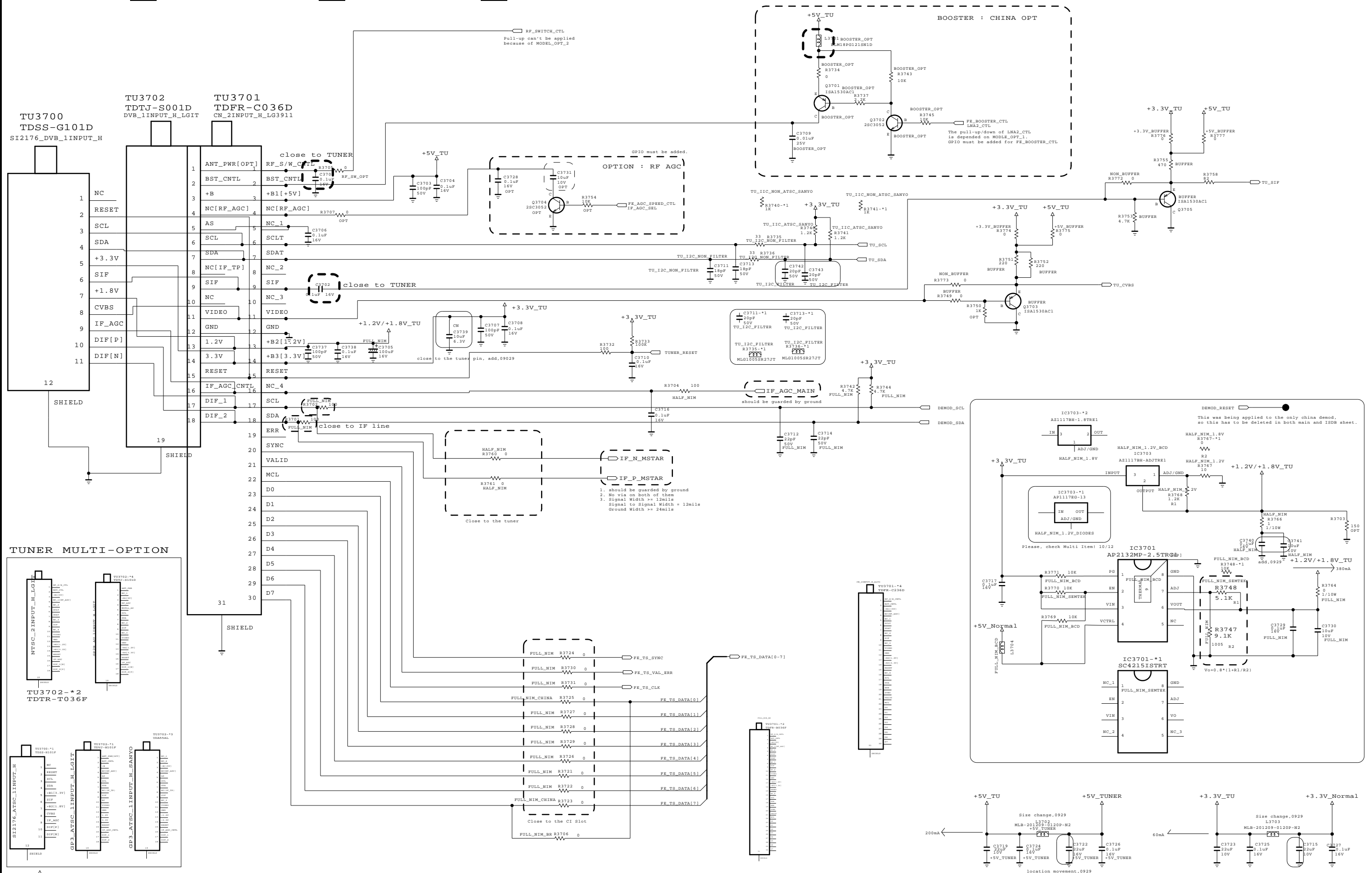
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
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MODEL	GP3 S7LR	DATE	20110324
BLOCK	SFLASH	SHEET	13 /

GP4R_GLOBAL_TUNER_BLOCK

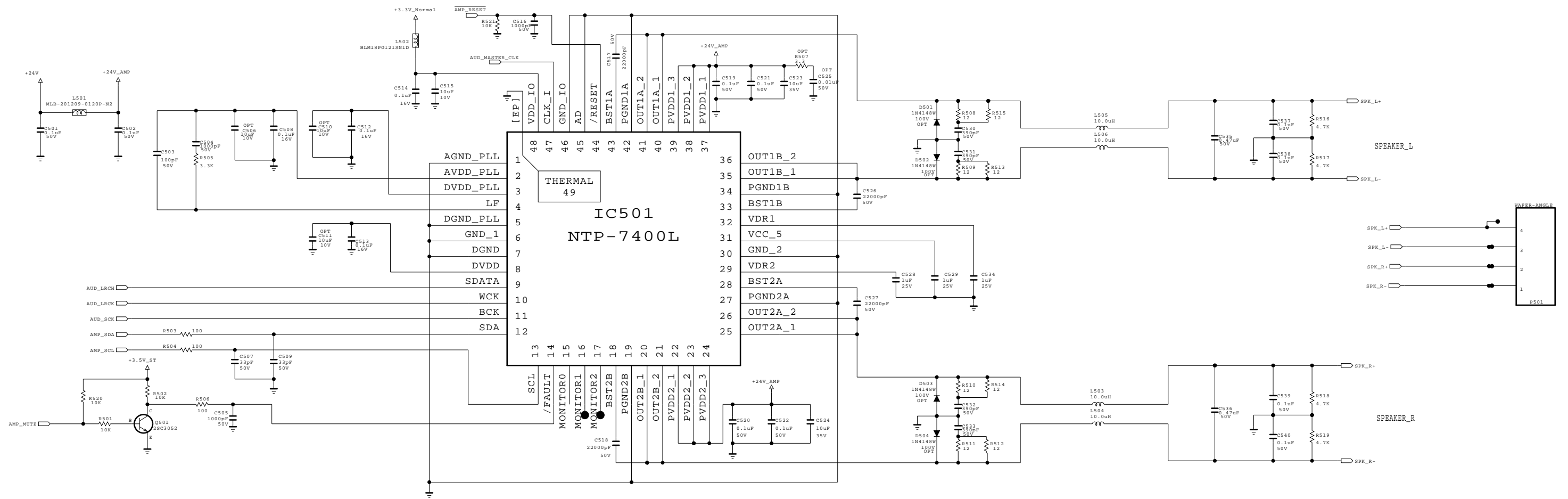




THE ⚠ SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110511
BLOCK	TUNER_L	SHEET	14 /



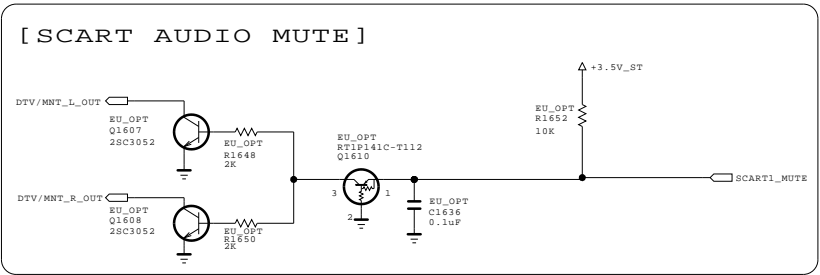
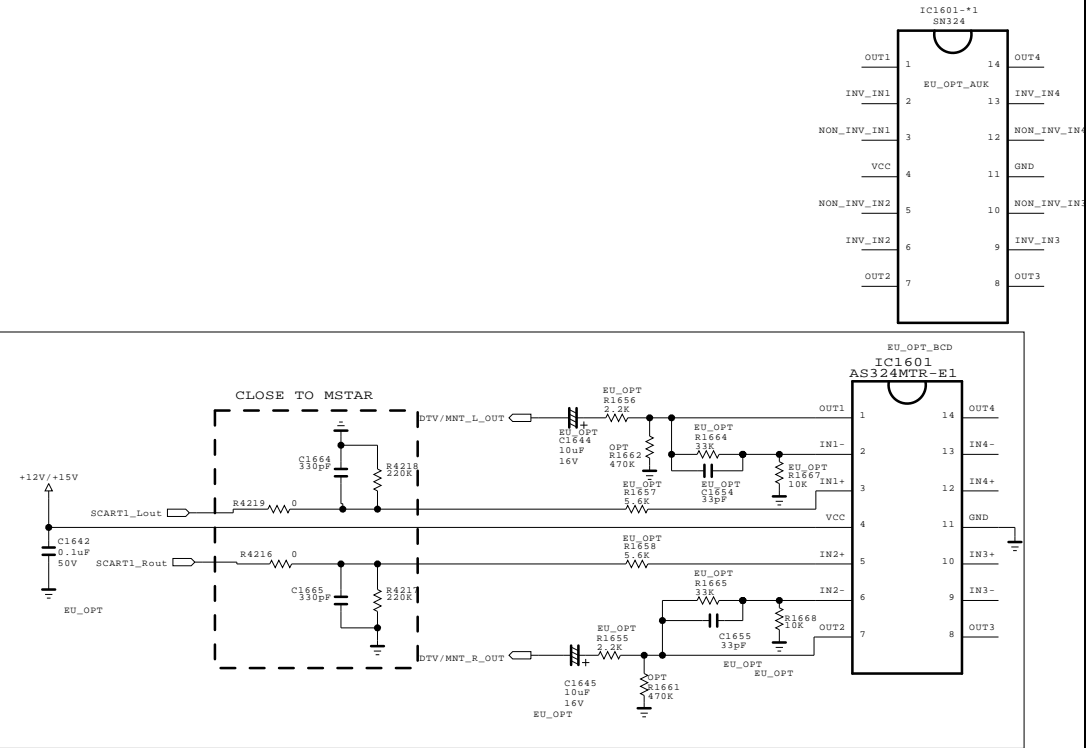
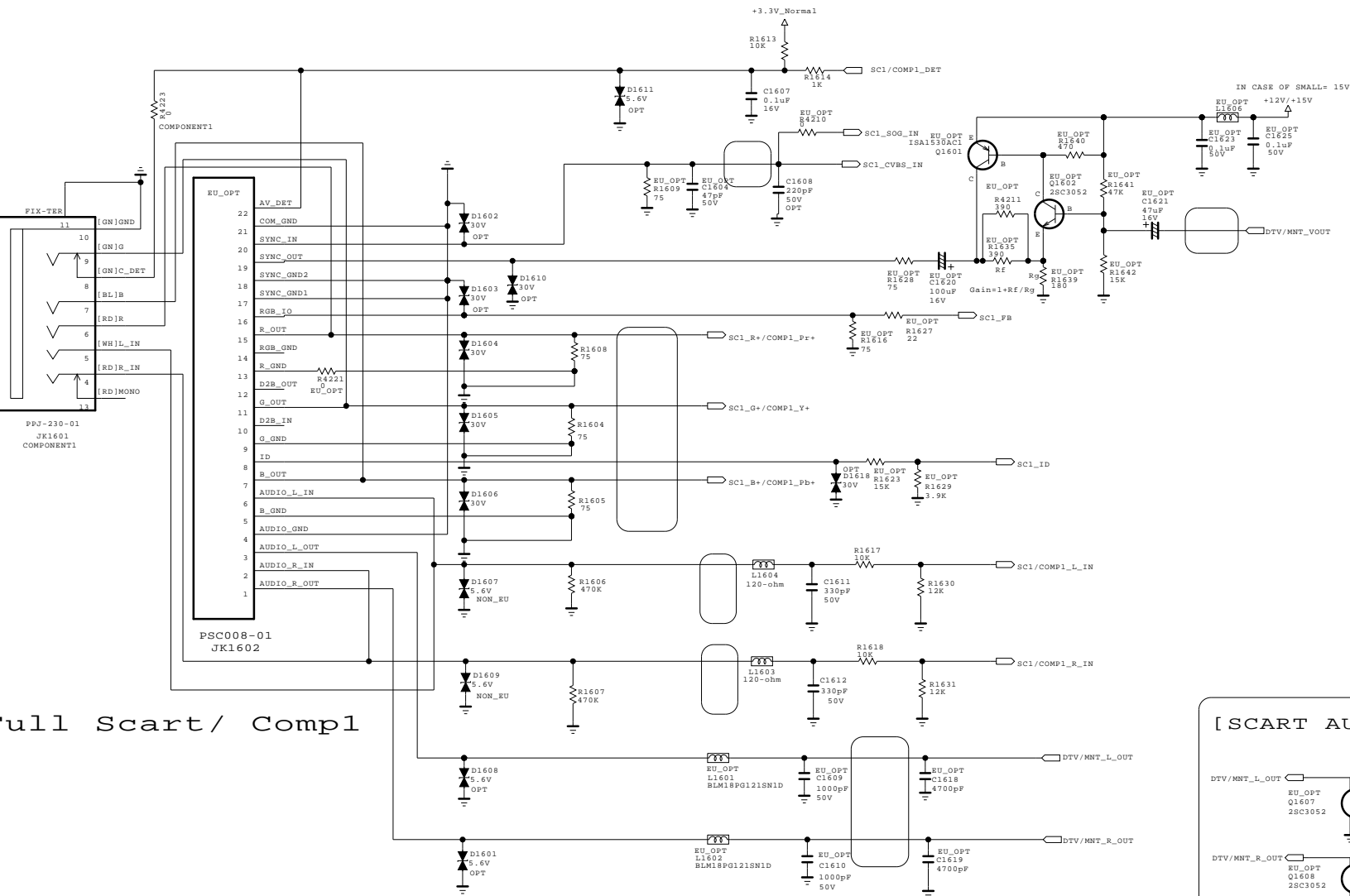
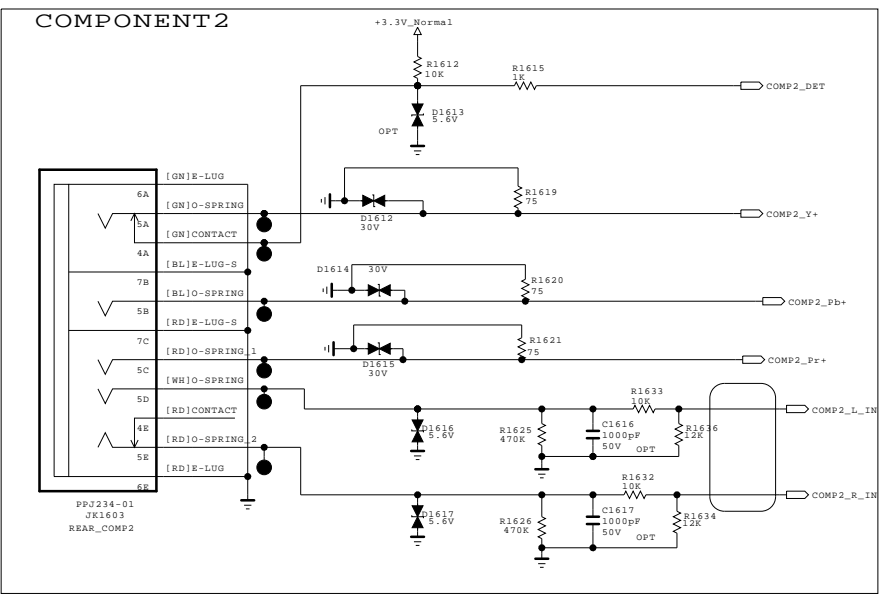
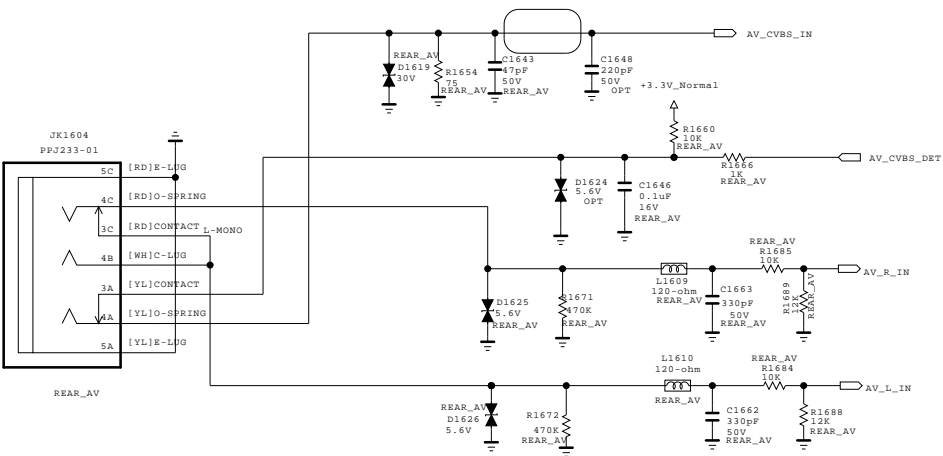
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.



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 LG ELECTRONICS

MODEL	GP3 S7LR	DATE	20110324
BLOCK	NTP7400	SHEET	16 /

Rear AV



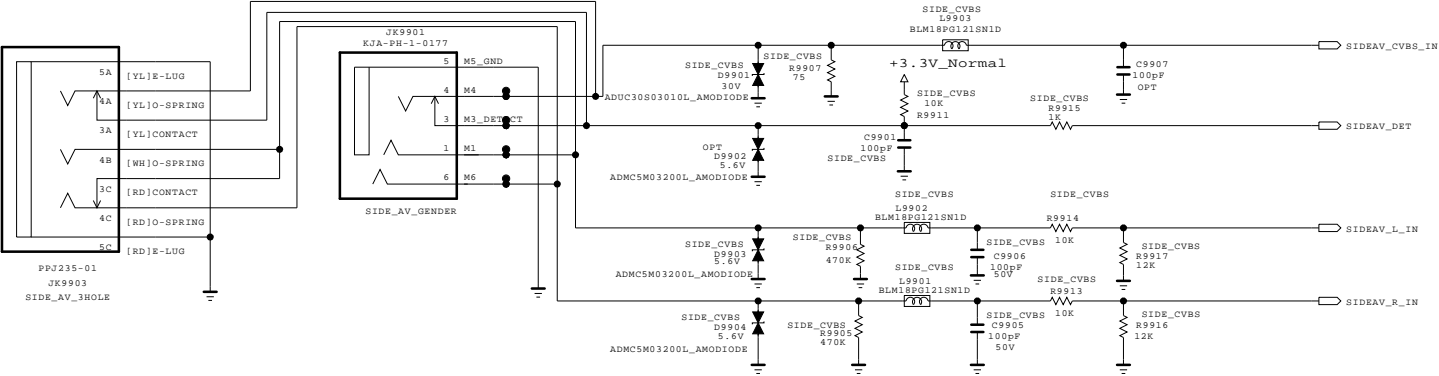
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

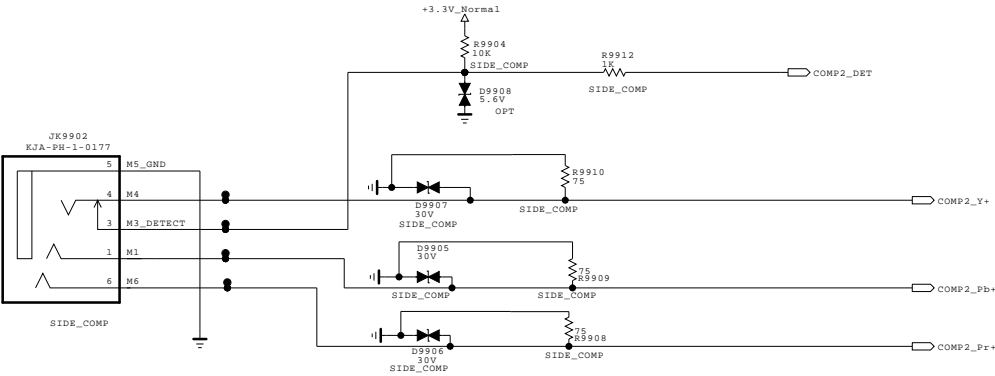




MODEL	GP3 S7LR	DATE	20110324
BLOCK	REAR JACK	SHEET	17 /

SIDE CVBS PHONE JACK
(New Item Development)



SIDE COMPONENT PHONE JACK
(New Item Development)



THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

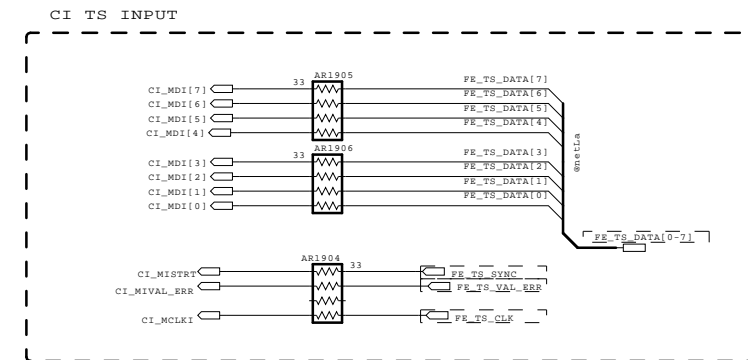
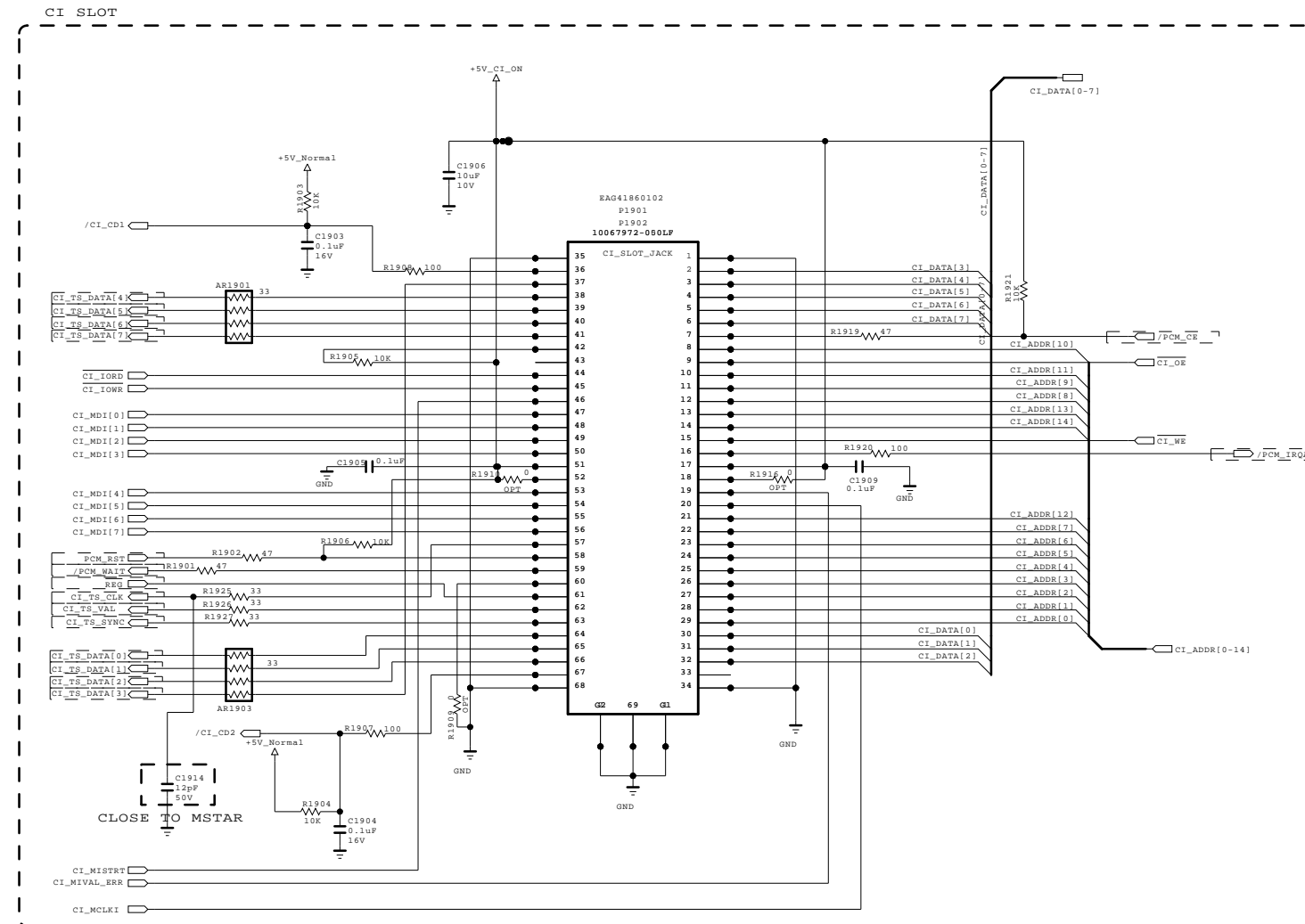
SECRET
LGElectronics



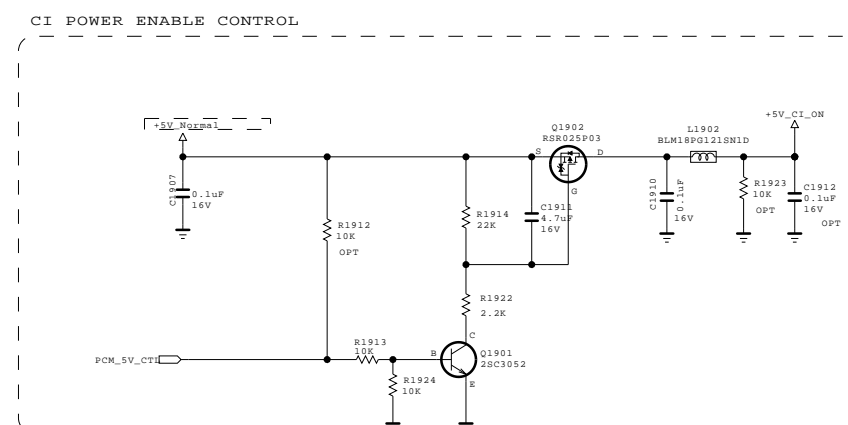
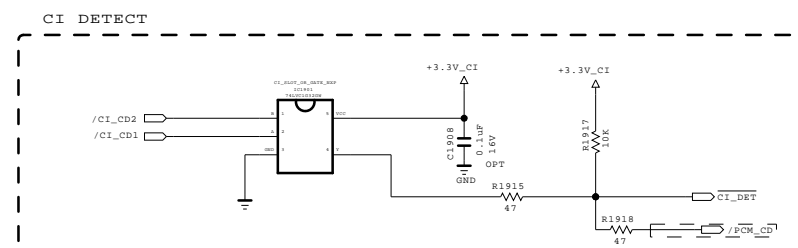
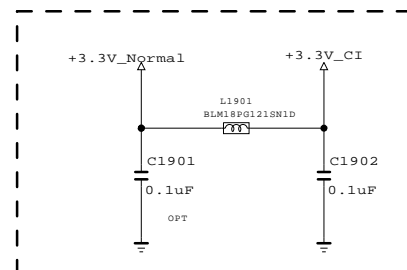
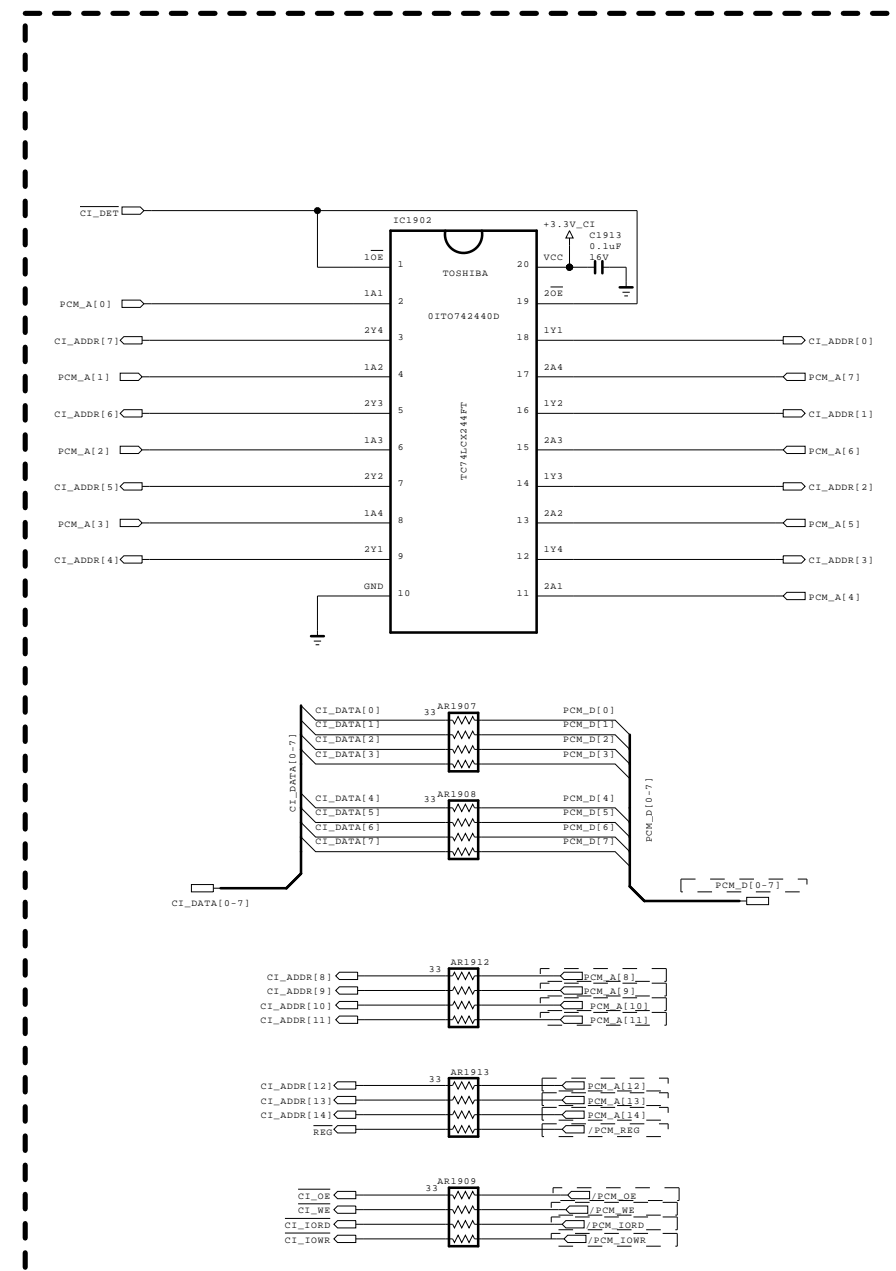
MODEL	GP3_S7LR	DATE	20110324
BLOCK	SIDE_JACK	SHEET	18 /



CI Region

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* Option name of this page : CI_SLOT
(because of Hong Kong)
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CI HOST I/F





THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

SECRET
LGElectronics

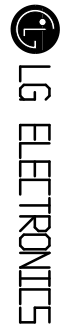


MODEL	GP3_S7LR	DATE	20110324
BLOCK	PCMC1	SHEET	20 /

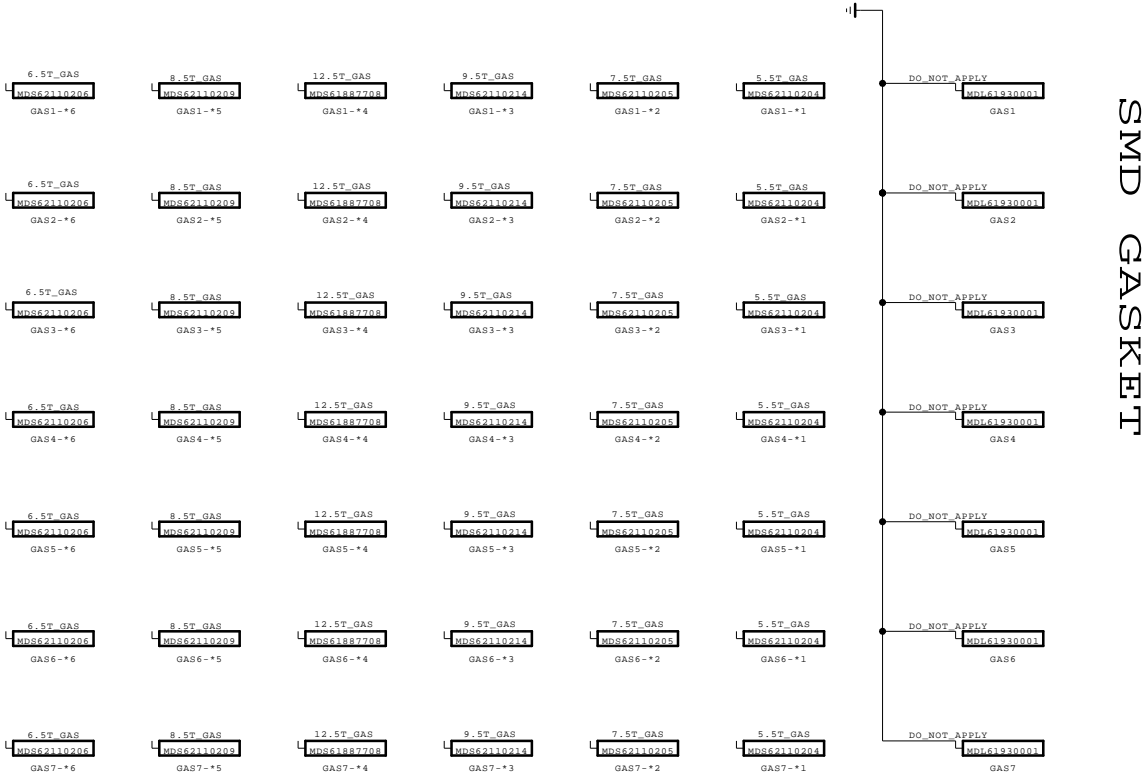
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SECRET

LG Electronics



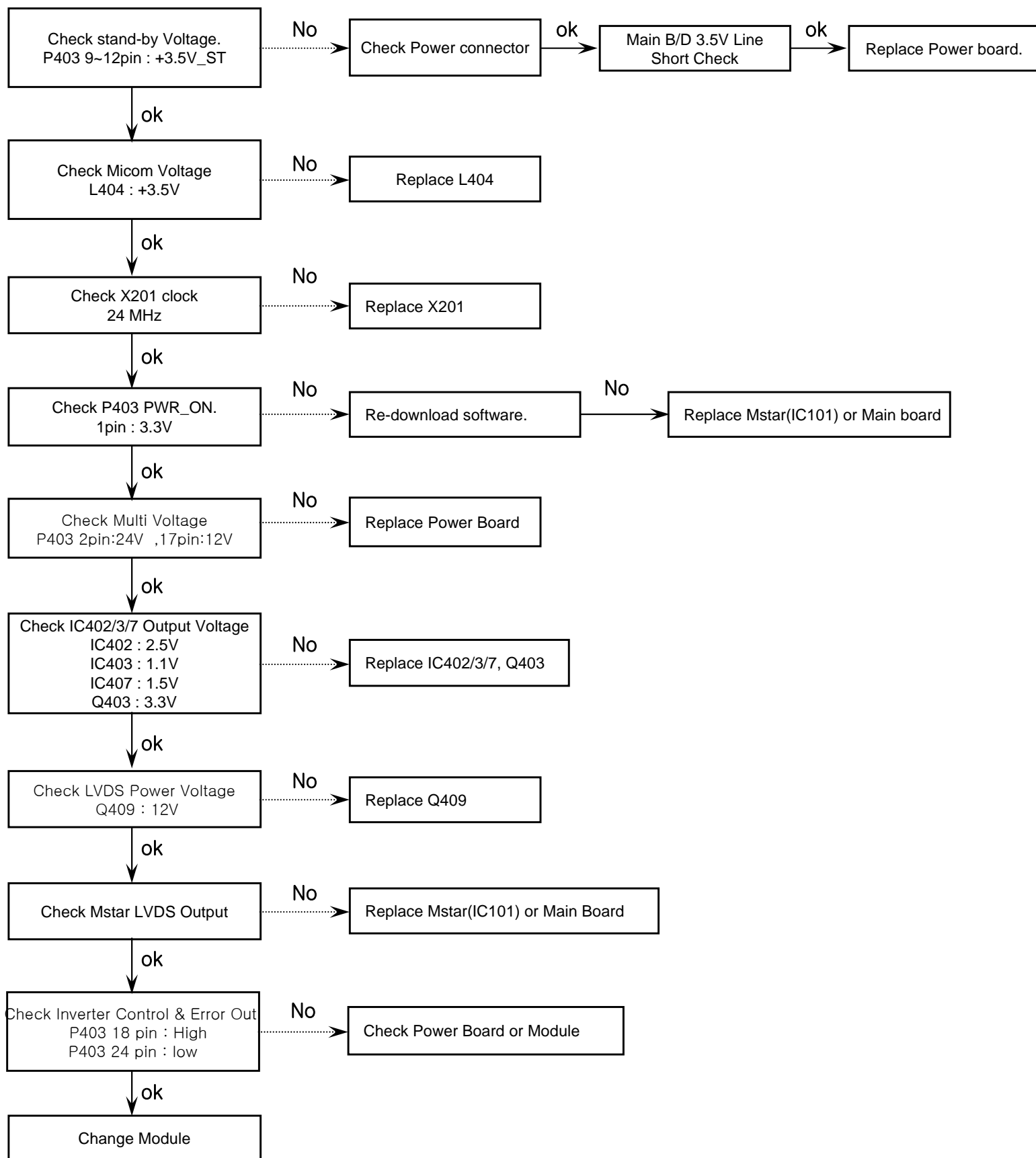
MODEL	GP3_S7LR	DATE	20110324
BLOCK	SMD_GAS	SHEET	20 /





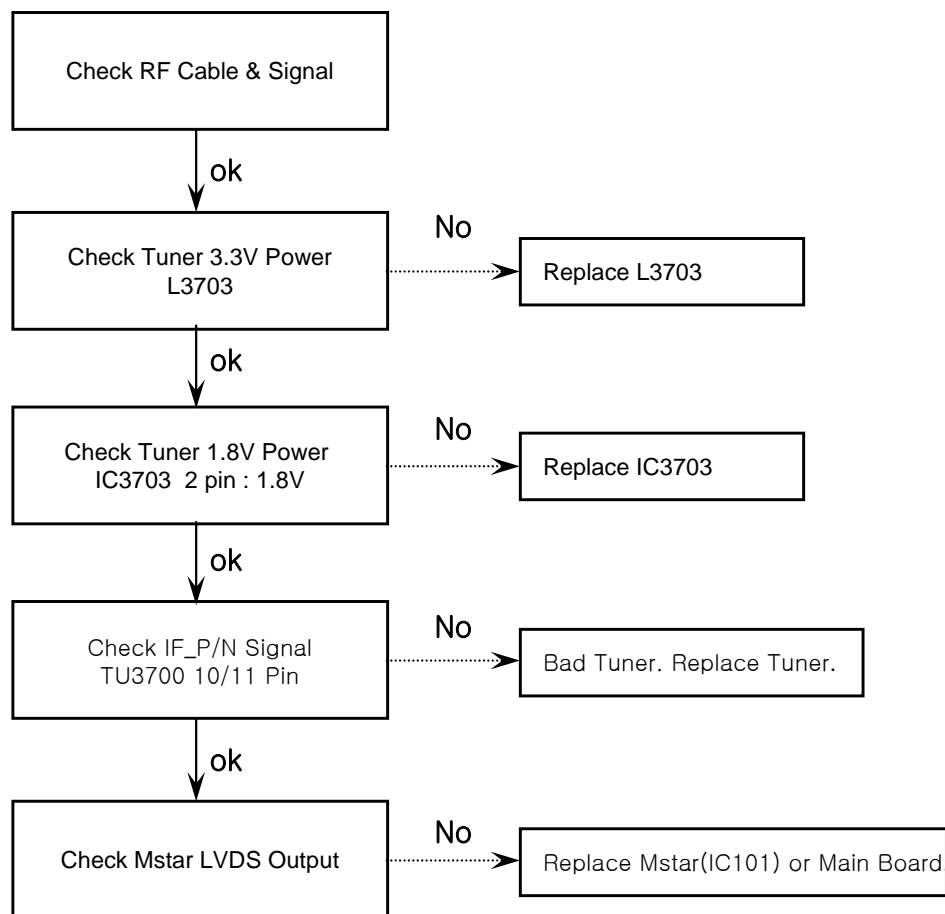
Trouble shooting guide

1. Power-up boot check



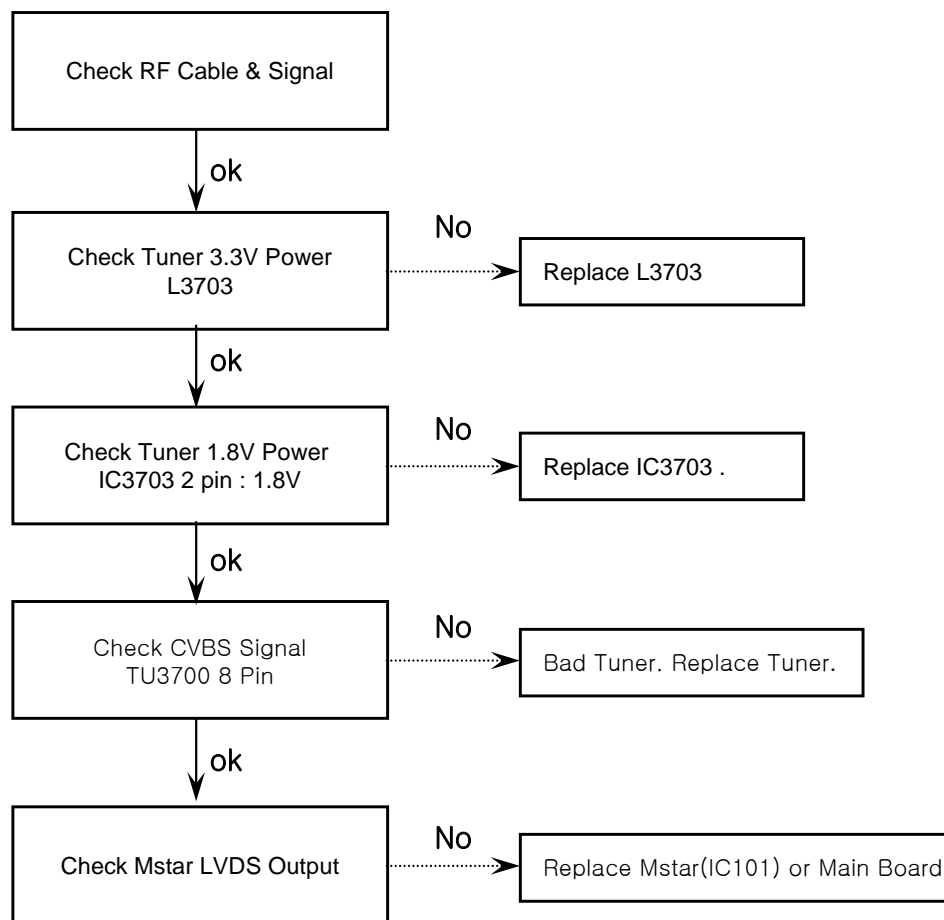
Trouble shooting guide

2. Digital TV Video



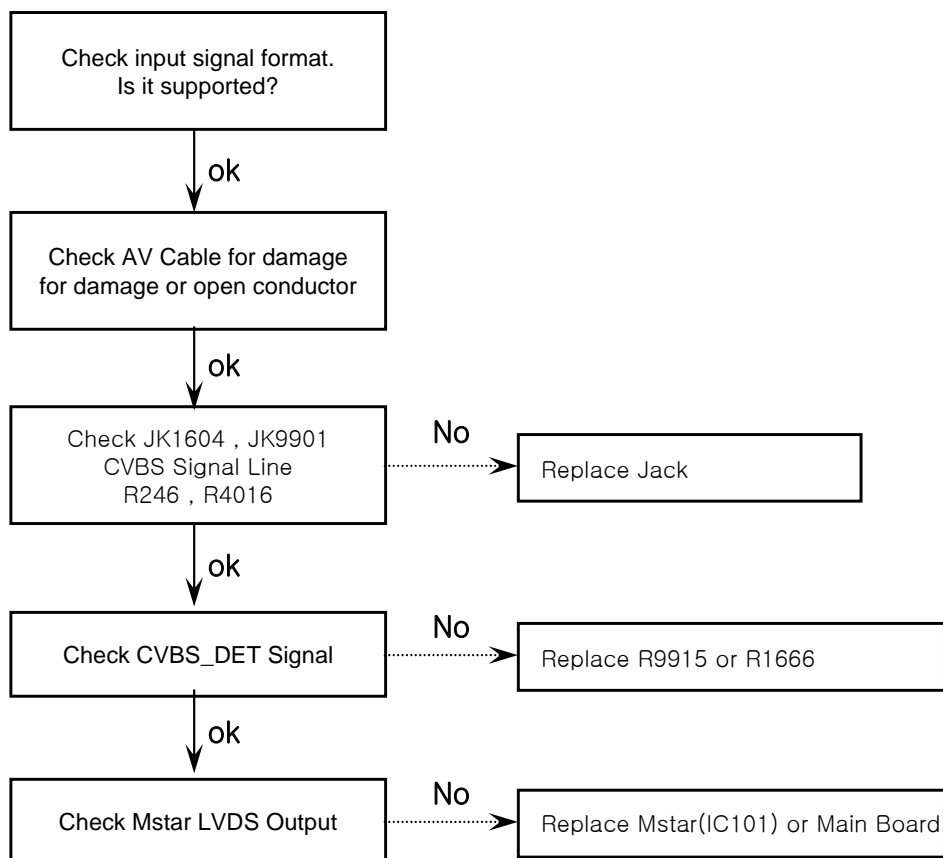
Trouble shooting guide

3. Analog TV Video

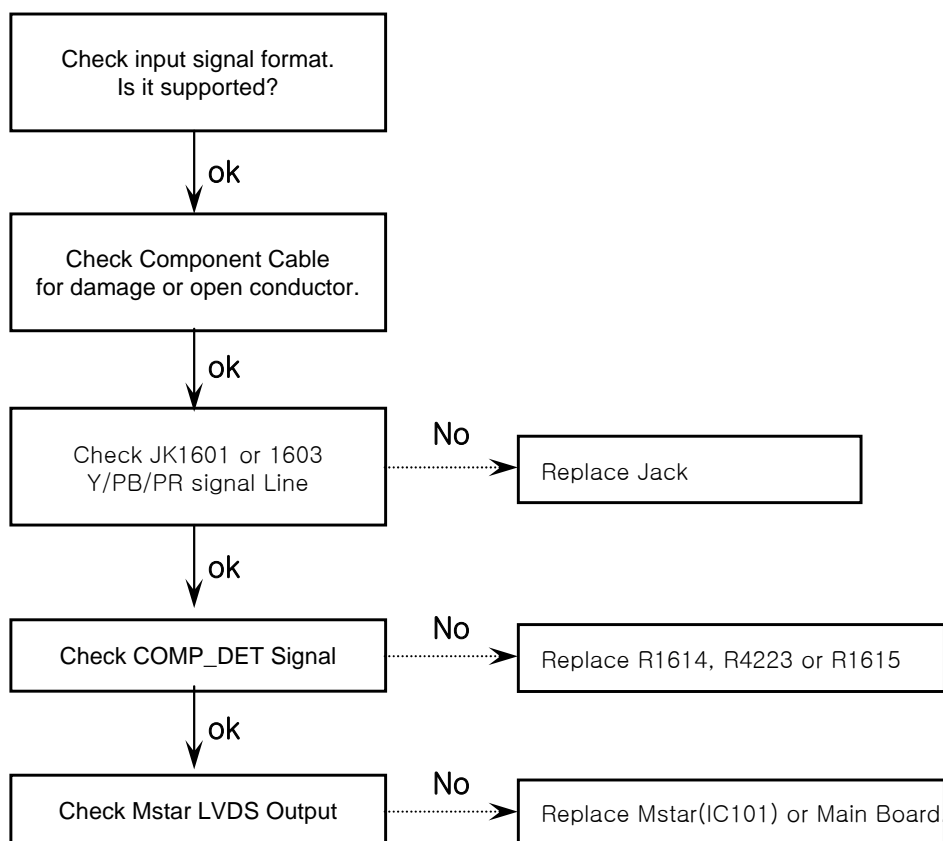


Trouble shooting guide

4. AV Video

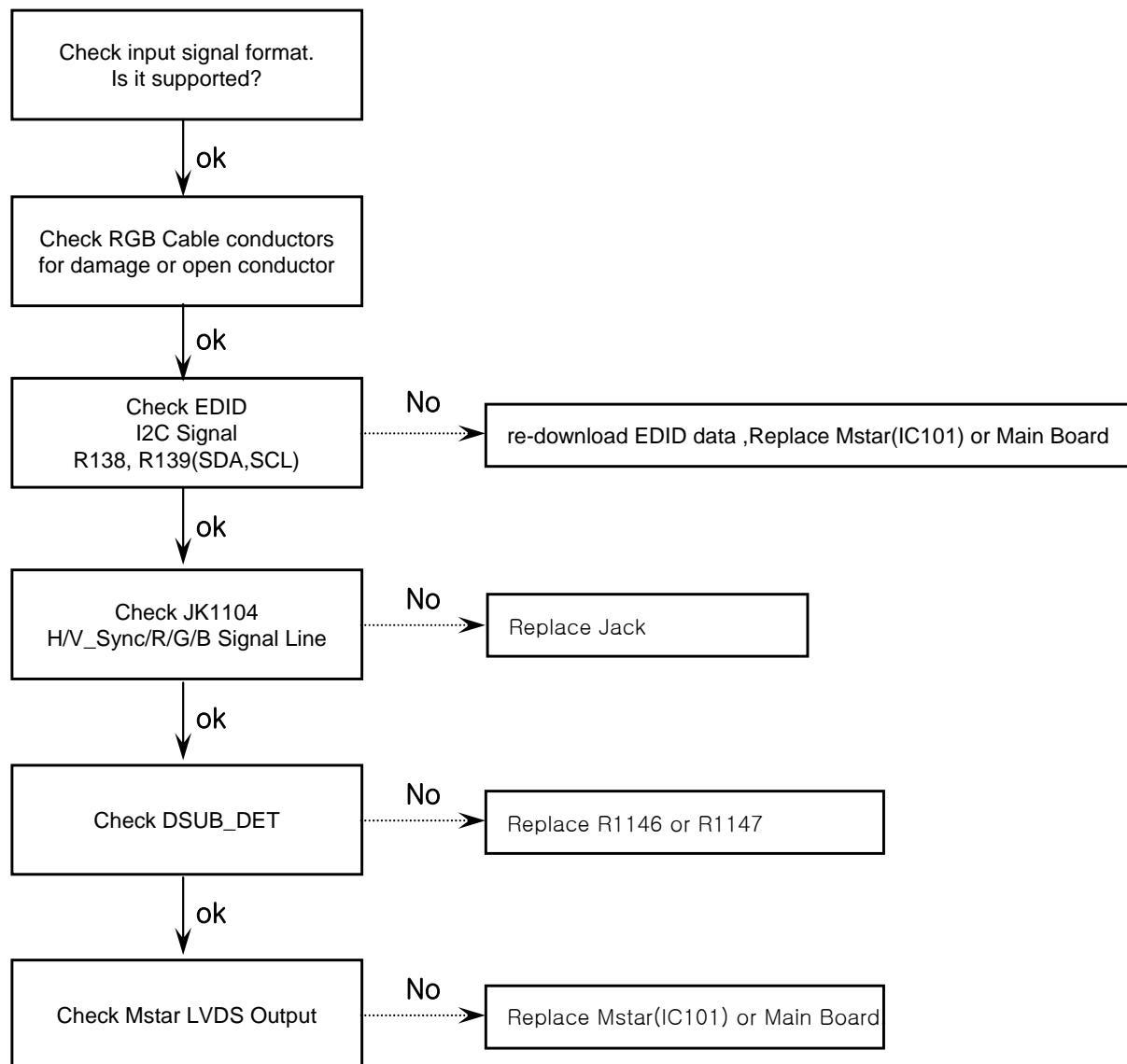


5. Component Video



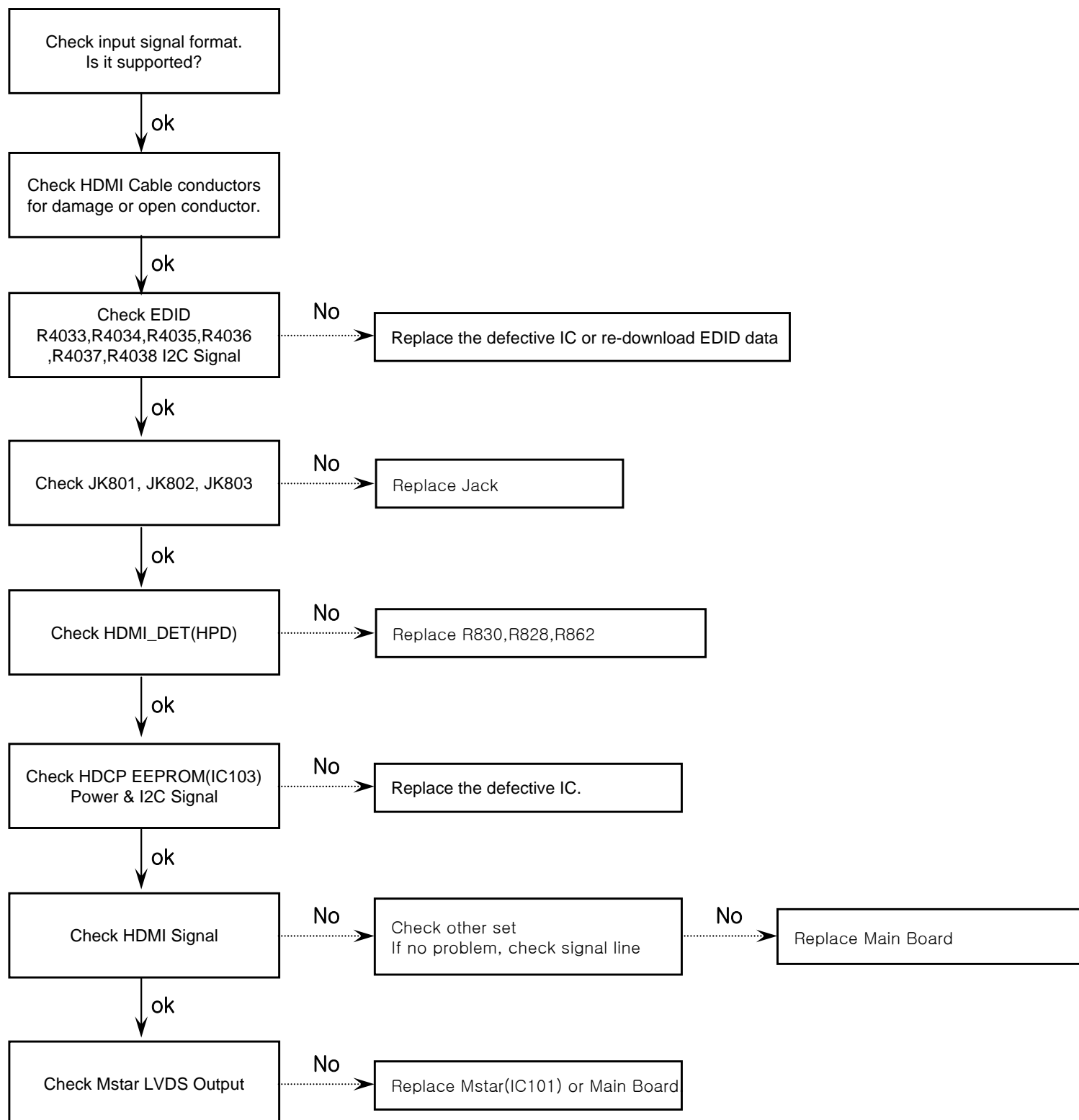
Trouble shooting guide

6. RGB Video



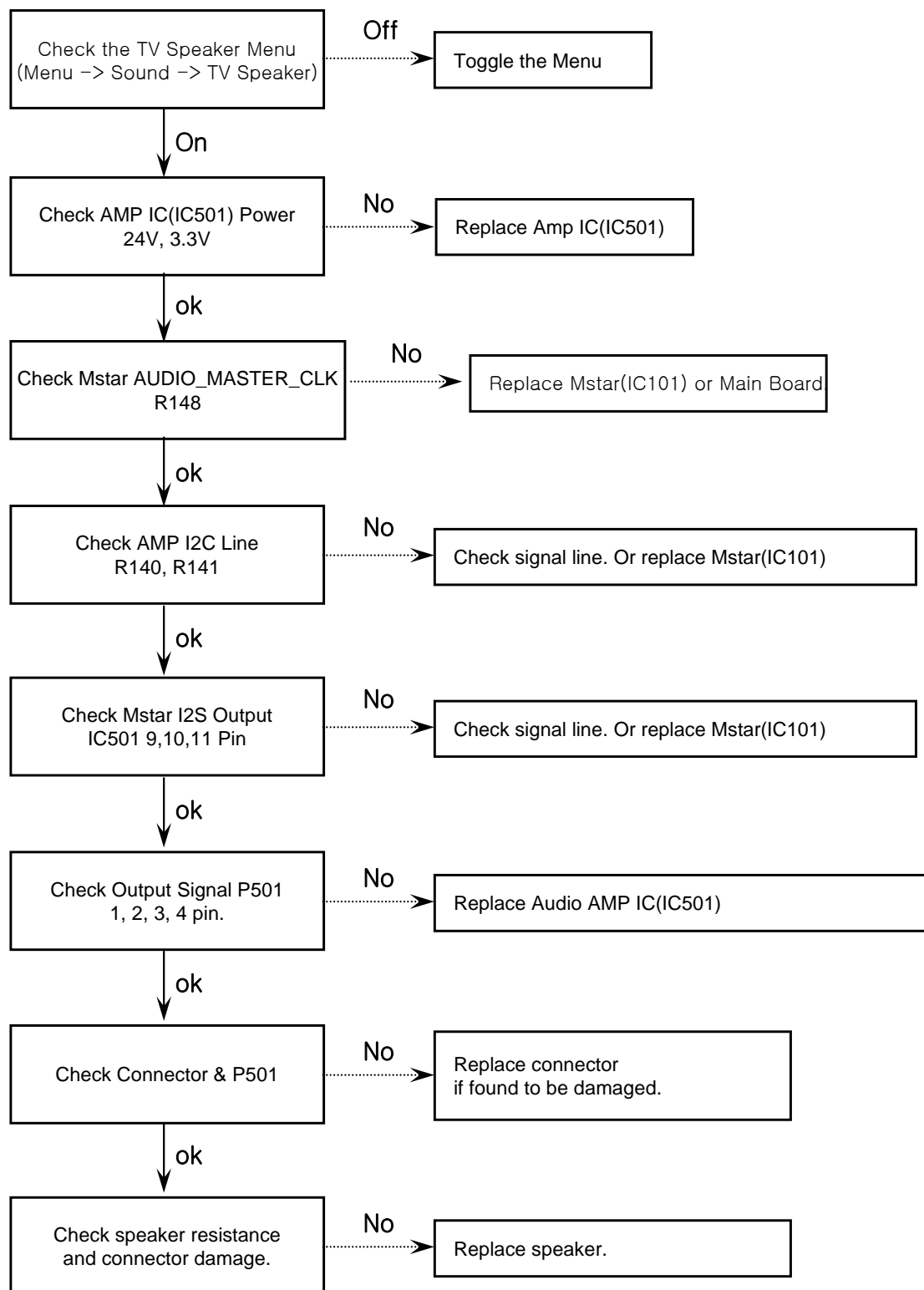
Trouble shooting guide

7. HDMI Video



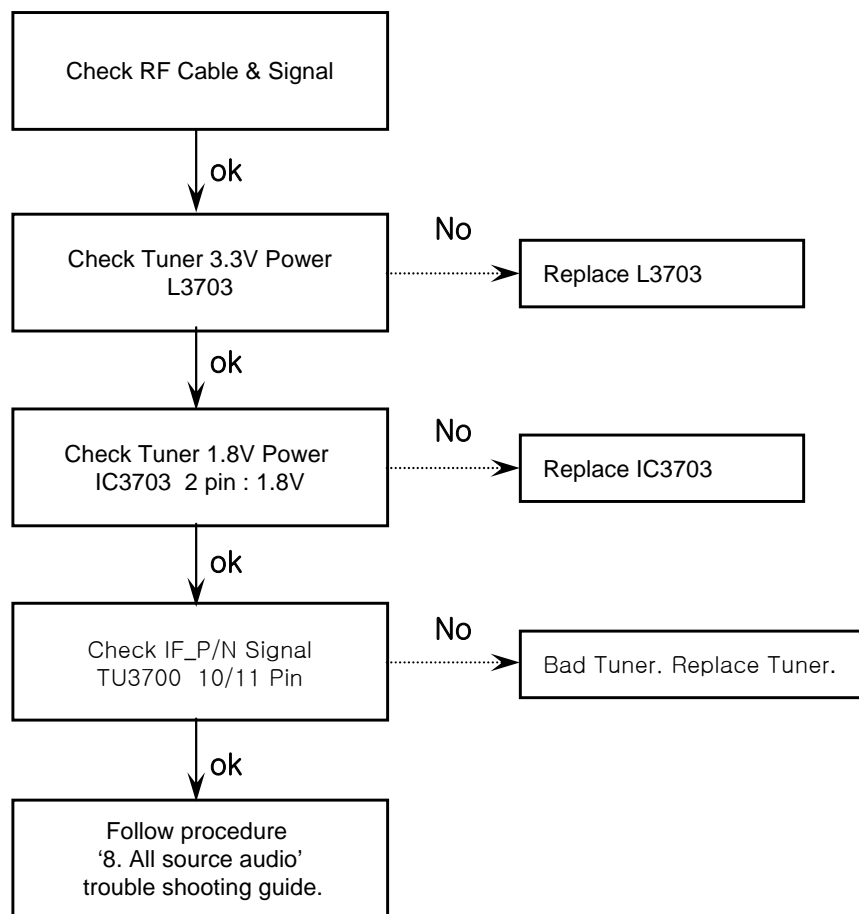
Trouble shooting guide

8. All Source Audio



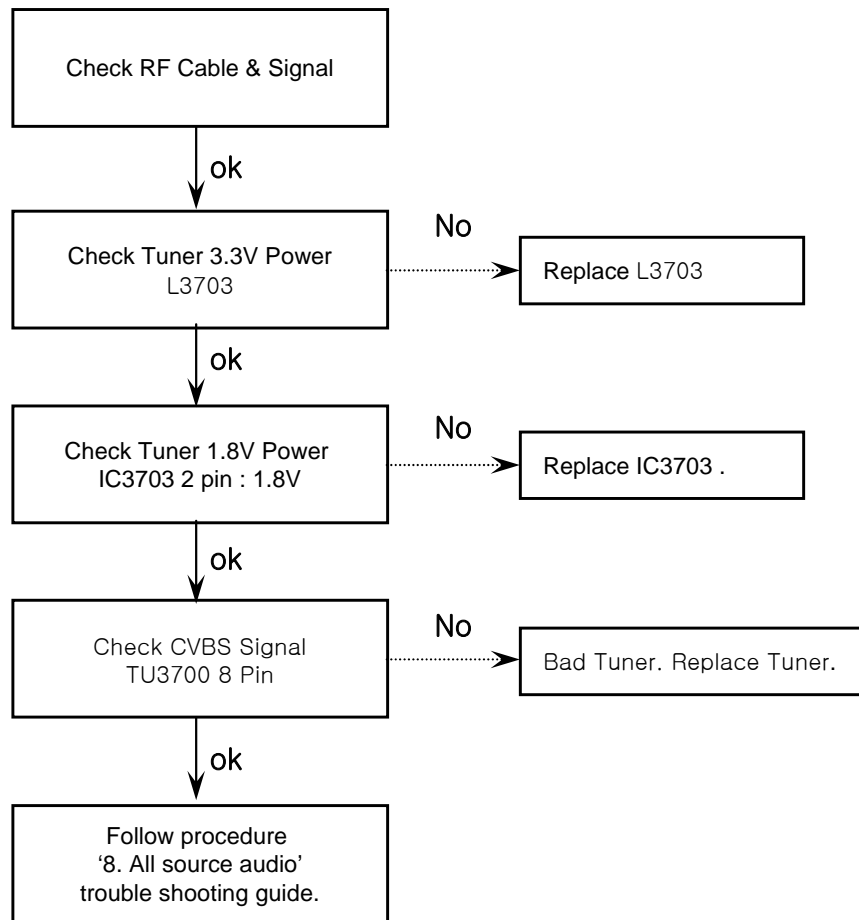
Trouble shooting guide

9. Digital TV Audio



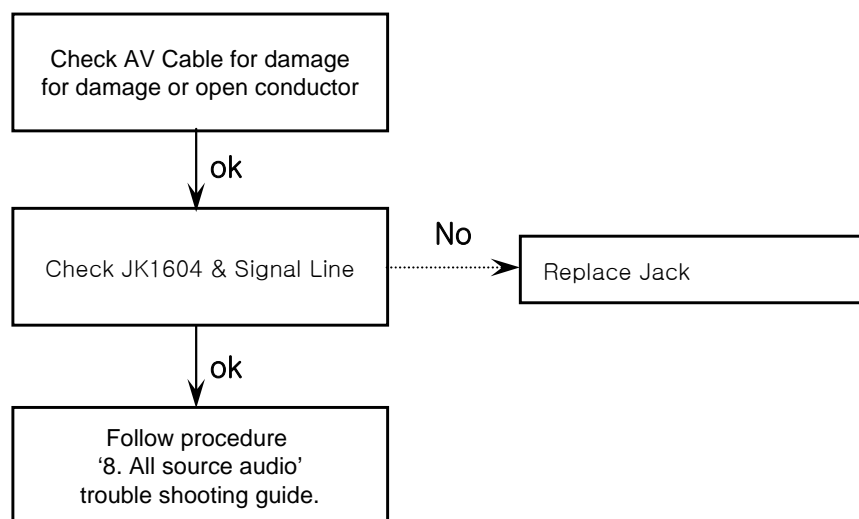
Trouble shooting guide

10. Analog TV Audio

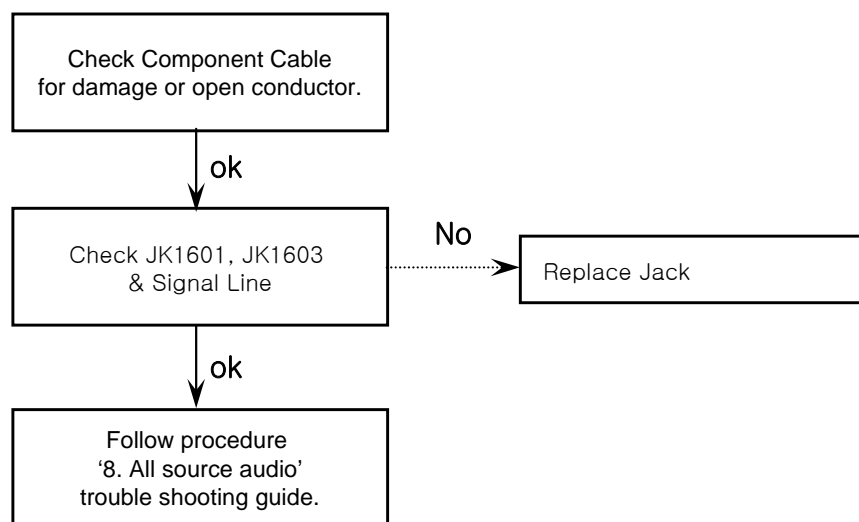


Trouble shooting guide

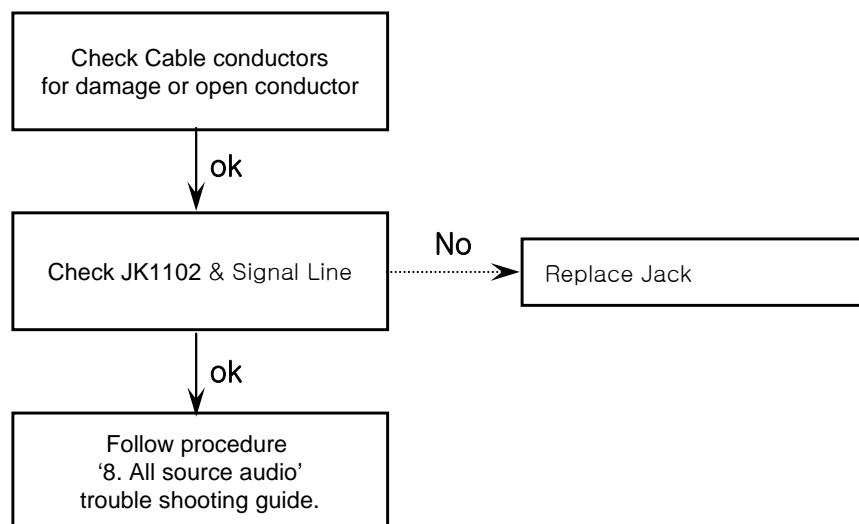
11. AV Audio



12. Component Audio



13. RGB Audio



Block Diagram: S7LR

